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PUBLISHED BY THE

SOCIETY OF ANTIQUARIES OF LONDON

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BY HORACE HART FOR

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AND SOLD AT THE SOCIETY'S APARTMENTS IN BURLINGTON HOUSE, LONDON

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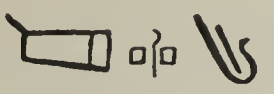
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I.—*A New Decipherment of the Hittite Hieroglyphs.* *By* R. Campbell Thompson, *Esq., M.A., F.S.A.*

Read 21st November, 1912.

§ 1. I have ventured to lay before scholars a new system of decipherment of the Hittite hieroglyphic inscriptions, based on a study of those already published, and those which were found during the season of 1911, when I was employed by the Trustees of the British Museum on the excavations at Carchemish. The Trustees have most kindly given me permission to quote from these new texts of 1911 as far as is necessary to prove my system of decipherment and grammar, even to the names of the petty chiefs which occur in them, and they have asked only that I shall refrain from discussing the historical side of their inscriptions, so that their own priority of publication at a later date be not anticipated. I wish therefore to thank them for a concession which I fully appreciate.

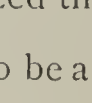
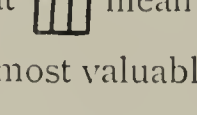
The new texts of 1911 from Carchemish do not differ outwardly to any great extent from those already known and published, for no bilingual was found. But a large and almost complete slab came to light inscribed with six lines of about six hundred closely-written Hittite characters, which ultimately formed the base of my decipherment, and after several months' work on it I came to the conclusion that there were several kings' names concealed therein. Such results as I have embodied in this article differ almost entirely from previous systems of decipherment, and, omitting the obvious ideograms, I can agree only with a few of Professor Sayce's values[1] out of his whole syllabary,

[1] All credit is due to him for  and  determinative for place-names:  det. for 'god':  in his suggested value, the god Tesup (I cannot agree with 'Sandes'):  *s*: his brilliant identification of the city-name spelt  with Tyana (*PSBA.*, xxv, 1903, 179), although I differ slightly from him in his ultimate values, reading *T(a)-a-n(a)*:  'king', which Jensen held (*ZDMG.*, 48, 1894, p. 302) (which I prefer to translate

and with his translations hardly at all. But although I cannot often concur in his methods of decipherment, I wish to acknowledge my indebtedness to all

---

'lord'):  'tree': perhaps , two numerals:  'bowl'. In  he first saw the idea of making a treaty (*TSBA.*, vii, 1882, 276), which he altered later to 'to love' (*PSBA.*, xxv, 1903, 156); I believe that his former suggestion was nearer the truth, as I think it refers to the making of blood brotherhood (§ 87). In the two forms of  he found the idea of 'great' or 'lord' (I believe it to be used as the plural of  'great', 'chief'); but unhappily his suggestion, made in 1882, that  meant 'killing' or 'conquering' he changed to the incorrect one of 'power', a view which Rylands (*PSBA.*, xxi, 1899, 210) also held.  may be, as he suggests, the ideogram for 'chief'. In  , translated from the earliest period of decipherment as 'I (am)' or 'He says', Professor Sayce, I believe wrongly, ultimately (like Jensen and others) inclined to the former. He is nearly right, I believe, ultimately in calling  *wa, ua* (properly *mi, wi*), and correctly sees in it the mark of the first person singular of the verb, although his example (which I read *kat-mi* 'I', the cuneiform *kattimi*, not a verb at all) is singularly unfortunate (*PSBA.*, xxiii, 1901, 95): he is nearly correct in  with *is* (I believe it is *as*); on what I believe are incorrect grounds he obtained correct values for  *nas* and  *ar*, and on unsatisfactory evidence ultimately called  *ar* (I believe it is *ir* with a 'tang'). (See his articles *PSBA.*, xxv, 1903; xxvii, 1905.)

Jensen, although we need not much concern ourselves with his system, rightly I think, recognized that  meant 'lord' (*Hittiter und Armenier*, sign-list), and he very nearly lighted on what I hold to be a most valuable clue in seeing that  contained the name of Hamath, and even went so far as to explain the latter two characters as 'king', from a comparison with other texts, the whole reading according to him 'King of Hamath'. But he failed entirely to give syllabic values to the name of Hamath, saying that its first character might in some cases be a plural ending, and in the translations in *Hittiter und Armenier* he relinquished the view that this group meant Hamath (*ZDMG.*, 48, pp. 301 ff.: see also Messerschmidt, *Bemerkungen zu den Hett. Inschr.*, p. 15, who quotes him). Sayce also came close to seeing this, but his incorrect division of the signs in the inscription prevented him from identifying it, and I cannot agree in the least with his latest translations of the Hamath inscriptions (*PSBA.*, xxxiv, 1912, 217). Jensen was led astray, I think, entirely in seeing Syennesis in the name which I read *A-r-ar-a-s* (§ 12).

A word must be said for Menant ('*Eléments du Syllabaire hétéen*', *Acad. des. Inscr.* xxxiv, 1892) who saw in  (which I believe to be *e*) a vowel *a* (p. 100); and Peiser saw in  the division mark, and in  the mark of an ideogram, according to Sayce, the plural (see, however, the sign-list at end of this article). Ball (*PSBA.*, x, 1888, p. 447) recognized in the proper name, which I believe to be Benhadad (§ 33, *note*), a royal name of which the first character was the god Dadi. W. H. Rylands (to whose energy much of the collection of Hittite material in the early days of the study is due) noted that 'on the shoulder of the [Mar'ash] lion at Constantinople is a human figure', which, unfortunately, he says formed no part of the inscription (*PSBA.*, ix, 1887, 375): nevertheless, it has been omitted in the copy

the work which he has done. During the last quarter of a century his labours have been indefatigable in securing new texts or accurate copies of the well-known inscriptions: if a new hieroglyphic or cuneiform text was discovered, he examined or published it whenever he could, and his lists of every possible

in Messerschmidt's *Corpus*. I do not think we need concern ourselves with the work of Conder or Gleye.

The greatest stumbling-blocks in the way of decipherment appear to have been the bilingual Boss of Tarkondemos, and two groups of hieroglyphs which occur several times in the Carchemish texts, in which has been recognized, I believe entirely erroneously, the name *Carchemish*, spelt variantly (a suggestion due to M. Six), and consequently to several characters were assigned values due to the supposed variants. Personally, I believe the latter part of these groups to contain the words *Nineveh* and *Assyria*, and that none of the phrases has anything to do with Carchemish at all (see § 51).

After the Society of Antiquaries had offered me the courtesy of hearing this paper read on November 21, 1912, Dr. Rusch, a German scholar, saw a brief notice of the meeting in the *Orientalische Literaturzeitung* of the January following. As he had been working on a system of his own during the same time as myself, he not unnaturally wished to draw attention to such claims as he might have to any priority of decipherment; and to this end wrote to the President of this Society giving references to notices of his system, and sending to him a manuscript copy of his labours. I think that I can satisfy Dr. Rusch that our systems are so fundamentally different that one of us is wrong. His work is referred to in *Deutscher Reichsanzeiger*, 1911, No. 269; 1912, Nos. 38, 114; and by von Scala in *Internationaler Archaeologen-Kongress*, Okt., 1912. The following is the list of proper names which he has discovered in the hieroglyphs, according to the *Deutsch. Reichsanz.*, in a reference to a meeting of the Vorderas. Gesellschaft:—Lapa, Lupastius, Teschubis, Teschub-Tarchu, Teschupiha, Teschuputias, Targurtisar, Argurstis, Motarvu, Hatti-Teschub, Arha, Arrapa, Kisch, Kuti, Kararkarti, Patesi, Sutech, Tarchus, Maarsi, Sigur, Huchu, Motar, Gurtis, Gurtius, Sepasuvu, Tarmispa, Teschup, Tarchi-Hattis, Ischtar-Gurtis, Teschupgurtisicha, Archa, Haartichamis, Motargurtis, Aryatarpa, Hapagurti, Luku, Teschuparpas, Pasaas, Tarchumispas, Teschupas, Tarchusapasus, Teschupucha, Teschuptis, Tarchu-hattis, Argurmis, Gurtyas, Motaragurmis, Gurpas, Teteschup, Teschupgurtispas, Teschupicha, Teschupti-tarchurus, Arra, Hattisteschup, Teschuparra. From this list I think that it will be obvious that our two methods of decipherment have nothing in common, as only in one single word (the name of the god Tesup, long ago discovered) do we agree, and I hardly think it worth while to discuss his manuscript translations in which I cannot follow him. He goes so far as to adopt Professor Sayce's values for the signs for god, Tesup, 'land' (the double peak), *s*, the armed hand as *Krieg*, 'throne' (*Ehrenplatz*), and the ideographic value 'water', with the numeral nine, and the two (unused) numerals three and four, and in the second of the two numeral signs quoted in § 1, *note*, he sees '1000': the sign of the two legs running was given the possible meaning of 'to run' by Menant (*Eléments*, 1892, p. 105); and he sees in a number of obvious ideograms their picture values, such as the sign of the head with the tongue protruding, the ideographic meaning 'speak', the foot (I deny the leg) 'to go', and the Tesup-sign the lightning or serpent, in which I gladly concede to him any priority as far as I am concerned.

As far as I can see, the values for the remainder of his signs, which are liberally compared to both Egyptian hieroglyphs and Assyrian cuneiform signs, are different from mine. He has relinquished the view (I believe an erroneous one) that the larger figure at Ivriz is a god, but his attempt to read the name as 'Hatti-Tešub' is impossible, for he includes the first word 'I am' as part of the name.

I have gone thus fully into Dr. Rusch's system because it is unpublished for the most part, and I wish to make it quite clear that we differ entirely.

In the following pages it will be found that the footnotes frequently give sign-values and transliterations for convenience sake before the evidence of such equivalents in the main body of the article has been reached.

kind of geographical or personal names or of Hittite cuneiform words have been invaluable.

§ 2. The materials available for the study of decipherment were (1) the two well-known bilinguals, the 'Boss of Tarkondemos' and the seal of Indilimma, which have been as much a stumbling-block as an aid to students; (2) the Hittite cuneiform literature, consisting of the two Arzawa letters and the tablets from Asia Minor[1]; (3) the hieroglyphic texts themselves. The two bilinguals had been thoroughly worked over by decipherers, and the only satisfactory values which were likely to be an aid were those given to  and  . The Hittite cuneiform literature offers a far better starting-point. In this case, although the transliteration of the cuneiform signs is a comparatively easy matter, the translation is altogether another question: nevertheless one of the Arzawa letters has been made out with fair accuracy, and it is possible to recognize the same grammatical forms recurring in the transliteration of the few other tablets which have been published. As Professor Sayce has pointed out, particularly noticeable in these cuneiform texts, which are written about the fifteenth-fourteenth centuries B.C., is the undoubted adoption of Assyrian words, not only the Sumerian ideographs for 'king', 'son', 'city', &c., but simple words spelt out such as *pa-ni* 'before' (literally 'face'), *a-bi*, *ab-bi* 'father', *a-na* 'to', *i-na* 'in', and *ad-din* 'I gave' (§ 89).

§ 3. During the excavations of 1911 a stela was dug up which had been found in the excavations of thirty years before, and buried deeply so as to preserve it.[2] The sculpture on it represented a seated figure, and it was inscribed with Hittite hieroglyphics which had been first copied and published by Mr. St. Chad Boscawen, his copy being re-published by Messerschmidt in

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[1] Abbreviations in this article: A i, A ii = the two Arzawa letters (see Knudtzon, *Die zwei Arzawa-Briefe: Die el-Amarna Tafeln*, 270 ff.). Al = Aleppo Tablet, Sayce, *PSBA.*, xxix, 1907, 91: B = Belck, *Anatolia*, ii: C = Chantre, *Mission en Cappadoce*: D = Sayce, *JRAS.*, 1908, 985: E = Sayce, 1907, 913: F = *ibid.*, the second tablet: G = Sayce, *JRAS.*, 1909, 974: H, I, J, K, L, M, N, O, P, tablets published *ibid.* 963 ff.: Id. = Ideogram: Liv. = tablets published by Pinches, *Liverpool Annals*, vol. iii: M i, M ii, &c. = Messerschmidt, *Corpus Inscriptionum Hettiticarum*: Rams. = Ramsay, *PSBA.*, xxxi, 1909, 83 (an inscription on Kara Dagh): TA, Tel Ahmar = Inscription from Tel Ahmar, Hogarth, *Liverpool Annals*, ii. 165 (in many cases I have added emendations to his text from my hand-copy made from the actual stone while employed by the Trustees of the British Museum): Winckler = *Mitteil. d. Deutsch. Orient. Gesellschaft*, 1907, no. 35: Y = Sayce and Pinches, *The Tablet from Yuzgat* (*Royal Asiatic Society Monographs*, 1907): Z = some Hittite cuneiform tablets published by me in *PSBA.*, xxxii, 1910, 191: *ZDMG.* = *Zeitschrift der Deutschen Morgenländischen Gesellschaft.*

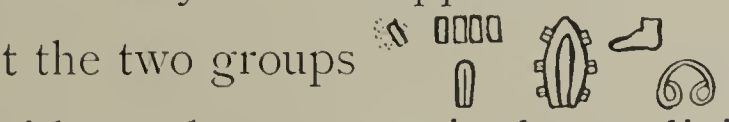
[2] Not 'left there to be destroyed', as Professor Sayce describes it (*PSBA.*, xxvii, 1905, 210).

his *Corpus Inscriptionum Hettiticarum*, pl. XV, B. In passing this daily on my way to the diggings I was attracted to the recurrence of an elaborate sign  in the first line which runs [1]



It occurred to me that possibly this sign might from its first position be the second syllable in the name of the well-known Hittite king Sangar (preserved in the records of the Assyrian kings Aššurnaṣirpal and Shalmaneser), and in its second position the first syllable of the name Carchemish (in Assyrian Gargamiš). In this latter identification I was wrong, but in the former, I think, right, and my hypothesis, thus correct in identifying 'Sangar', proved ultimately to be accurate in its value for *gar* in both words.[2] By a happy coincidence I found the following similar groups in a phrase on the long inscription which I mentioned in § 1, which led me to believe that the hypothesis that they stood for Sangar of Carchemish was worth following up.



Now  had always been supposed to be the sign of the Hittite nominative in *-s*, so that the two groups  and (this second group beginning with , long recognized as a division-mark) might be supposed to end at *s*, as nominatives. On this assumption the second case gives *-gar-s*, and the first *-gar-* *-s*; clearly if the word were Sangar we could read = *san* easily in the second case; but how will that agree in the first, where takes the place of , and the place of ?

§ 4. Egyptian grammar here, however, offers a clue, with its 'phonetic complements'; and on this assumption if and both = *san*, the second

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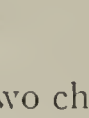
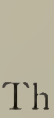
[1] The Hittite hieroglyphs read *boustrophedon*, but for the convenience of the text I shall always write them beginning from the left.

[2] I did not recognize for a long time that the obvious reading for the last word was  *San-gar-s*, and not *Gar-gam*(?)*-s*, the characters being arranged so as to please the eye. This second Sangar must have been grandfather of this Sangar who wrote the inscription, according to the ancient habit of calling a son after his grandfather.

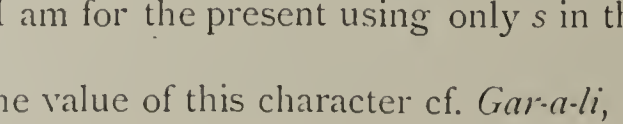
may well be read either as (*s*)*san* or *san*(*n*): similarly if  and  both = *gar* we may well read the second as (*g*)*gar* or *gar*(*r*).

Now in the case of the group  [1] the last sign but one marks it as a place-name; hence from our hypothetical values (allowing *g* for the foot-character) we get *Gar-g-*?*-s* + 'place'-? Clearly we have Gargamis here, the only sign wanting being the broken one.[2]

There are therefore the following values suggested:

 *san*[3]  *gar* or *kar*[4]  *n* or *s*  *g* (*k*)

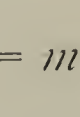
§ 5. Take next a group in one of the new Carchemish texts (reading it in its obvious order):



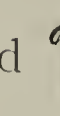
This clearly is a place-name from the last character: the last but one is *s*, and the last but three is *g* or *k*: hence we get

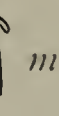
?-?-*g*(*k*)-?-*s* + 'place'.

It is a reasonable hypothesis to see Gargamis again in this, and by reading *KA-R-G*(*K*)*-MI-S* obtain the following hypothetical equations:

 = *k*(*g*)*a*,  = *r*,  = *mi*, with

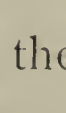
 = *g*(*k*) from the preceding section, and  *s* as before.

§ 6. The sign  is one of the commonest in the hieroglyphic texts: and just as  and  are both found, so are the parallels  and  . Hence we shall not be far wrong if we see in  the addition of a vowel to  , which we know to be a consonant; and as we already have = *a* (from *Tyana*, § 1, *note*), the possibilities for the vowel are *e*, *i*, *u* (from the Hittite cuneiform). Similarly

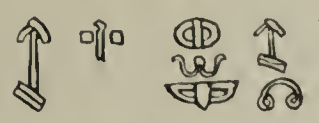
[1] Or transpose these last two characters. [2] This must be restored  *m*.

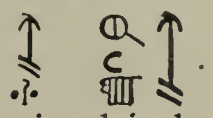
[3] With regard to *s* as distinct from *ś*, the Hittite cuneiform in seven or eight hundred words shows barely a dozen certain cases of *s*: notably we find a word *sa-an*, A ii, 7. For the reason that so few cases occur I am for the present using only *s* in the hieroglyphs: for a discussion on this see § 90.

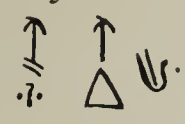
[4] For a third indication of the value of this character cf. *Gar-a-li*, i.e. קרל, § 11.

we should reasonably see in  the sign  with the vowel *e*, *i*, or *u* added, which is a step towards our suggested value *mi*.

Take the Ivriz sculpture of two figures facing each other, each with a short inscription close to it. That near the larger of the two figures begins

 [1]

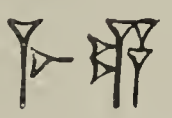
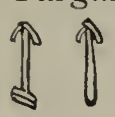
As was mentioned in § 1,  is the god Tesup, and hence we can define  as a separate word. This is at once endorsed by the inscription near the second figure which begins similarly with the same two characters: so also does M xlvi  .

The second group in this last phrase is to be found in the Hamath texts M iii, B 2: iv, A, 2: iv, B, 2, but whether it is really the same word or words is doubtful. To these we may add also M liii  . Hence  is a complete word.

To what shall we compare this word *mi-a* which can begin historical inscriptions, and is followed, once at least, by a divine or personal name? In many Oriental inscriptions (for instance, the Behistun rock) the customary words in such a place are 'I am'. Now in that misleading text, the Boss of Tarkondemos, Professor Sayce suggested that the first word *me-e* in the cuneiform legend, on the analogy of the Arzawa *-mi* 'my', should be translated 'I am'.[2] Hence, if my suggestion is right that we should expect the Ivriz hieroglyphs to begin 'I am', and if Professor Sayce is right in seeing 'I am' in the Hittite cuneiform word *me-e*, the hypothesis that the hieroglyphic word is *mi-a* 'I am' is so far reasonable, and we may be now fairly sure that 

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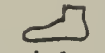
[1] M xxxiv (Nachtrag). My copy, made from the rock in 1909, is the same for *mi-*'; on the reading of the proper name see the translation at end.

[2] 'In spite of the strangeness of the expression I am inclined to see in *mê*  the Hittite first personal pronoun' (*PSBA*. xxi, 1899, 204). For the cuneiform text on the 'Tarkondemos' Boss see translation at end, 'I am Targašša-?-wi'. Sayce was very nearly right in his final value *wa* or *ua* for  . Halévy considered  as the signs for a vowel; Hommel (in his list of signs settled 'without any doubt', *PSBA*. xxi. 233) considered this correct; and Jensen also couples  as 'à d.i. a und o (auch u ?)' (*Hittiter und Armenier*, sign-list). Sayce in *PSBA*. xxiii. 99 held that  denoted the first singular of the verb, and consequently '  will be *i* or *ya*'; this he altered to *wa* or *ua* in 1905 (*PSBA*. xxvii. 245), but curiously read  as *was*.

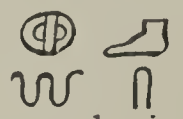
really has the value *mi*. It is unnecessary for me to give here the well-known cases of *-mi* = 'my' in cuneiform, which will be found in § 57.

We can then proceed further and say that as this sign is *mi*, then  alone is *m*, and that it follows that just as  is *n* or *s*, so  will be *ni* or *si*.

As a corollary it seems probable that  has more the value of a helping vowel than *a* simply:  should be read perhaps *mi-'* rather than *mi-a*.

§ 7. We have now fair evidence that our group is a town ending in *-mis*, and our next point to prove is whether  really is *g(k)*. Consider, then, a group from the inscription on the bowl said to come from Babylon, or, as the British Museum labels it, from Abu Habbah (M i):



The sign  is clearly a 'bowl', as has long been known (§ 1, *note*), and the second group begins with the name for the god Tesup.[1] Although I can rarely agree with Professor Sayce, he has translated it 'this bowl for the god Sandes',[2] which seems to me to be very near the correct rendering (although I in no wise accept his transliteration  = '*w-i*'). The ideogram 'bowl' and the god's name give the distinct clue that the bowl was dedicated to the god, and if so, we shall probably find that  means 'for the god Tesup',[3] making the necessary alteration in the translation of the god's name.

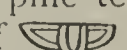
Now, by our hypothesis we should read this as 'God'-*Tesup*-*g(k)*-*n* or 'God'-*Tesup*-*g(k)*-*s*, and hence we must see in this *g(k)*-*n* or *g(k)*-*s* a post-positive preposition 'to' or 'for'.

Do the Hittite cuneiform texts throw any light on this, and does the word  occur often enough in the hieroglyphs to justify our supposing that it is such a common part of speech as a preposition?

Consider, then, the following passages from cuneiform tablets:—

(1) (W 19) AḪI-IA *ia-mu* ^{m}*Muttalli-iš a-aš-šu-uḫ-ta nu-mu-kan maḫ-an* NIŠÎ-*an-na-za* &c.

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[1] An examination of the hieroglyphic texts will show that, in sense at least, the name may be written with or without the addition of  .

[2] *PSBA*. xxvii, 1905, 192. His last rendering (*PSBA*. xxxv, 1913, 12) does not seem so good: 'this bowl, in the temple of Sandes (the god) of Atuna I have made.'

[3] The word following this group is distinct and well known, and is thus correctly separated.

(2) In the same text
ki-iš-ḫa-ḫa-at nu-mu AḪI-IA.

Now these two words *numu* and *numukan* are made up of the words *nu*, *mu*, and *kan*. *Nu* is undeniably 'to', for it is the first word of the cuneiform letter obtained at Aleppo *nu* ^{am}*e-lum-û ba-a-bi-ia* 'Unto ^{am}*e-lum-û*, my father' (Al. 1). It occurs constantly in Hittite cuneiform thus, to give only a few examples:—

nu-mu A i, 25: A ii, 10. *nu-ut-ta* A i, 22, 28: A ii, 19: Y *r.* 12. *nu-uš*, Y 11, 15. *nu-uš-ši* A i, 14. *nu-uš-ša-an* Y *r.* 26. *nu wa-ra-at-mu* Y 4. *nu wa-ra-an* Y 23. *nu ma-aš-ta-an* Y 14. *nu* ^{ilu}*Za-ga-ga-an* Y 26. *nu a-bu-u-un-na* Y 28, 31. *nu ma-a-an* Y *r.* 11. *nu* ^{sal}*Su-gi* Y *r.* 37.

Next, *-mu* is undoubtedly a collateral to the *-mi* possessive of the Hittite cuneiform, and the *me-e* mentioned above; it occurs:

wa-ra-at-mu (A i, 18: Y 4). *ia-mu* (Winckler 19). *ma-at-mu* (Winckler 19). *zi-ik-mu* (verb. imperative (?) with *-mu* A ii, 21). Possibly *ma-mu* (A i, 17).

We have, therefore, *nu-mu* 'to me', as well as *nu-mu-kan*, exact meaning uncertain until *-kan* is determined. Consider then:

(3) DÚ.LUGAL-*kan ṭaḫ-ḫi*... (F 7) (DÚ.LUGAL is the Assyro-Sumerian ideographic 'son of the king'): *ṭaḫḫi*.... is the same causative conjugation of *ṭa* 'to give' as *ṭa-a-ḫu-u-ut* ... (D 19): *ṭa-aḫ-ḫu-un* (Y *r.* 4): *ṭaḫ-ḫu-ṭa* (Y *r.* 18). This causative formation has long been recognized (see Knudtzon, *Die El-Amarna Tafeln*: Sayce, Y, p. 50).

(4) MULU^{pl} *mar-diš* A-NA LUGAL-*kan* (N 1).

(5) M 3 begins ... LU-*kan bi-e-te-ir*.

(6) LUGAL-*za-kan* (Liv. ii, 7); LUGAL-*uš-za-kan* (Z i, 5); LUGAL-*uš-kan* (*ibid.*, 11).

(7) *ma-a-an-na-kan* (N 3).

Other examples are *ki-i-kan* (A ii, 14); ...*za-kan* (Z ii, 7); *-uš-ku-kan* (*ibid.*, 8); and the remarkable Assyro-Hittite phrase at the beginning of a letter (Z 1, 2) *ša-li-im i-ia-zi* ŠUM-*kan* 'there is peace unto me, &c.' Clearly then here is a recognized postpositive form *-kan*, which can be seen from (3) to mean 'unto' ('unto the son of the king cause to give'), which may be strengthened by an additional preposition affixed such as *nu*, or the Assyrian *ana* 'to'. Its nearest English equivalent is perhaps 'to-ward'. This so exactly coincides with the postpositive  that we need no longer have any doubt about  = *g*(*k*) and  = *n*.[1]

[1]  postpositive occurs with and without suffixes many times in the Hittite hieroglyphs (see § 33, *note*: for examples without suffixes see e.g. M ii, 2: xxi, 4, 5; lii, 3; TA 4, &c., in the

§ 8. Next, to show that  = *ka*. It must be distinguished from the value of the foot-sign *k* in some way, and the distinguishing mark, the vowel, will be obvious from the following instances, and, although the proof of the value of this character would have been more obvious at a later stage of my thesis, I shall try to demonstrate it here. It will be clear, particularly from the translation of M xv b at the end of this paper, that in  *N-k-s*, the second word of the second quotation in § 3, we have a proper name. This name occurs in the same form in the inscription from which the first quotation in the same section is taken,[1] and hence we have it twice in the same connexion with Sangar on two different inscriptions. But more than this, in this latter inscription we also find  *N-ka-k-n*, i.e. *N-k-s* in an oblique case with our postpositive preposition *kan*: and this form *N-ka* occurs clearly as a personal name twice in M lii, 2 and 4 (from Mar'ash, see translations at end). Hence there is little doubt that  represents *ka*, in a word of which the nominative ends *k-s*. I cannot identify this *N-k-s* with any name in the Assyrian inscriptions.

§ 9. To prove that  = *r* must be done gradually throughout this article. The cumulative evidence of *K-r-a*, i.e. *Kirrî*, a chief of Ḳauai § 35); the name Assyria, *As-r-a*, varying with *As-ir* (§ 51); the king *A-r-ar-a-s*, Ariarathes (§ 12); *Adad-id*(?)*-r*, Benhadad (§ 33, *note* 4); our word *Ka-r-k-mi-s* above; the grammatical forms *s-r-a* 'they send', *t-e-r-a* 'they say' compared with the cuneiform *ša-ra-a* (§ 48) make it certain.

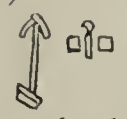
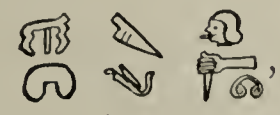
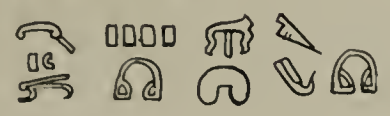
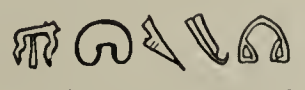
We can now proceed to a further decipherment of names.

There is a very important series of texts from Hamath or the neighbourhood. Three contain almost the same inscription (M iii b, iv a, iv b), which

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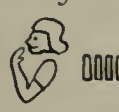
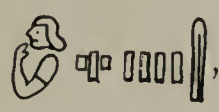
translations at end.)  would appear to have the value of both *g* and *k*; for it can take the place of *g* in Sangar and Gargamiš (which, however, the Hebrews wrote Karkemiš), and it is used in the following phrases: *Ar-am ḫ K-as-k* 'Aram, chief of Kaškai' (§§ 24, 35); *K-r-a ḫ* in M xi, 4, 5, the chief Kirrî (§§ 27, 35): *K-a-u-a-u-t Kat-t-e* 'the Ḳauai of Katê' (§§ 27, 60), and in a new Jerabis inscription on which are mentioned several kings of the ninth century we find *K-a-k*, i.e. *Kâki* (§ 24, see § 87). On TA 4 *U-'m-k* (the place-name 'Amḳ) occurs: cf. M xxxii, 3, and *Am-k* on a new Jer. inscr., § 52 (5). Moreover the sign  *gar* is used to spell the first syllable of the chief's name קרל (M lii, 4), and hence we may consider that the distinction between *g* and *k* was not very great. In Egyptian, for instance, the word Carchemish could be spelt with  *ḳ* or  *k*. I shall therefore represent the Hittite symbol henceforth usually as *k* for the sake of simplicity.

[1] There are even traces of the diagonal mark which indicates a proper name (see § 17).

varies only in two places: two are longer texts (M vi continued by M v), and there is one more (from Restan, about 20 kilometres south of Hamath) published by Sayce, *PSBA.*, xxxi, 1909, p. 259. These texts all begin with the much-discussed group  , a figure with its hand pointing to its face over . This figure used to be held to mean either 'I (am)' or 'saith' by practically all decipherers[1]: but with the prior claim of our  *mi-a* to the meaning 'I am', the sense of 'saith' at once becomes the probable one. Now in the Restan text and M vi after  come  , while in M iii B, iv A, iv B, we have  (arranging it thus in order for convenience). Clearly we can mark  and  as the same word, the second being defined as a nominative ending in *s*. We know that  is *n*(*a*), and hence we have a name, possibly of a ruler of Hamath, ending in *-na*.

Here again we must start with a hypothesis. Since we have now good grounds to suppose that an inscription from Jerabis (Carchemish) was written in the time of Sangar, it is not unreasonable to suppose that the Hamath texts, which have many apparent points of similarity to those of Carchemish, may have been written about the same time. Supposing that this were so, and that the name which we are discussing is really a king of Hamath, we must needs apply the name Irḫulîna, who, as is well known from the inscriptions of Shalmaneser II, was a king of Hamath and an ally of Benhadad (Adad-idri) at this period. We are thus far to the good that the *n* of the last syllable is represented by  *n*(*a*) in our word.

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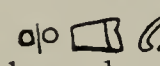
[1] E.g. Sayce (*TSBA.*, vii, 1882, p. 278) thought that  implied to speak or say, but later considered that it='I', though with much to be said in favour of 'he says' (*PSBA.*, xxi, 1899, p. 213). Hommel held that Menant was correct in making  'I (1st sing) (resp.  'I am')' (cf. his list, *loc. cit.* 233). Messerschmidt inclined to 'I' and not 'he says', as Peiser would have it (*Mitteil. der Vorderas. Gesellsch.*, 1898, 6): but in *The Hittites*, 1903, 28, he admitted both possibilities. Jensen (*Hittiter und Armenier*, sign-list) also considered it 'I'. For reasons stated later I hope to show that the meaning 'I' is impossible, and that 'say' is the probable one. In its usage a cursory examination shows that there is not much apparent difference in the sense of (*a*)  , (*b*)  , or (*c*)  , and we may regard the additions as auxiliaries. This is discussed in § 74.

For the purposes of our hypothesis, divide the name *Ir-ḫu-li-na* syllabically, like San-gar, and apply it to the hieroglyphs:

 *Ir* *ḫu* *li* *n(a)*

Do any of the first three characters appear elsewhere with these values?

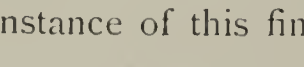
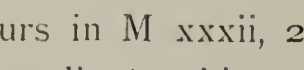
§ 10. Take  *ir* first. A study of Hittite cuneiform grammar shows that final *-ir* is used to express one of the persons in a verbal conjugation: for instance, the common root *ṗa* shows the form *ṗa-a-ir* (Z ii, 9: Y 22); *a-ki-ir* (Y 32, 33, 35)[1] is probably a verb; and similarly *bi-e-te-ir* (M 3).[2] As it seems reasonable to suppose, *-ir* is therefore a fairly common verbal termination, and if we could find words supposed to be verbs in the hieroglyphs constantly ending in  , it would go far to show that  = *ir*.

Consider, then, the word  or which occurs several times in the hieroglyphs. We have already met it in the dedicatory inscription on the bowl (§ 7), and it also occurs on a new Jerabis inscription,[3] and in M viii, A, 3: xxiii, A, 2: xlviii, 2. This word is made up of *a*, *d(a)* or *ṭ(a)*, and what is uncommonly like our sign without the little stroke in the middle.[4] If this is a verb *a-ṭ(a)-ir* it would certainly seem as though we had found the Hittite cuneiform root *ṭa* 'give', which has long been known, and compares with the Indogermanic root in δίδωμι. (The forms found are: *a-ṬA-an-zi*, G 16: *ṬA-a-i*, Y *r.* [25], 26, 27, [28], 30, 34, 35, [36], 42, 47, 48: [B 14 (?)]: C vi, 12: D 11, 18, 20; E 7, 12, 15, [16]: K 1, 9: *ṬA-a-e* C ii, 3: *ṬA-a-an-zi* E 1: *ṬA-an-zi* D 6, *r.* 10: E 8: *u-ṬA-an-zi* A i, 22: causative, *ṬA-a-ḫu-u-ut* . . D 19: *ṬA-aḫ-ḫu-un* Y *r.* 4, [5]: *ṬAḫ-ḫu-ṭa* Y *r.* 18). This supposition becomes at once practical when the value 'give' is applied to the verb in the bowl-inscription 'a bowl + *n(a)* unto the god Tesup *n-m-n-*  √give'. We have thus fair evi-

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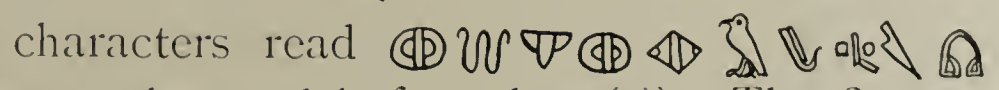
[1] The text runs: (32) . . . *wa* ^{ilu}*Gul-aš-ša-an* ^{ilu}*Maḫ ḫal-zi-iš-tin šum-ku-wa a-bi-e a-ki-i*[*r*] (33) . . . *e-ia im-ma *a-ki-ir mu-me a-bi-e-el um* BÂBU-*aš ḫa-aḫ-ḫi-ma* . . . (34) . . . *ḫa-aḫ-ḫi-ma-aš* ^{ilu}*IM-ni te-iz-zi ku-u-ši-wa bi-iš-ša-at-ti* . . . (35) . . . *-ši ḫu-u-ma-an-te-eš a-ki-ir mu-me ki-i-ni GAL-ri* . . .

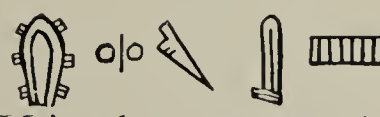
[2] The text runs: *LU-kan bi-e-te-ir* . . .

[3] Another instance of this final *-ir* in the hieroglyphs is  = : *a-* √*-ir* (M xxxii, 5).  occurs in M xxxii, 2, 4, and in xxxiii, 2, 6, and if be the root, then we can add this example to our list (on this question see translation to M ix, 3, *note*, at end).

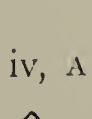
[4] For full proof see § 15. In order not to make matters too complicated, it is shown in § 17 that this little stroke or tang is frequently added to characters to show that a proper name is indicated.

dence that  = *ir*, and is only this character with a tang added to denote a proper name.[1]

§ 11. The third sign  , by our hypothesis *li*, occurs on the seal M xli, 1, where the characters read  (this last character may be meant to be read before the *n*(*a*)). The first god-name is Tesup: the second occurs constantly in proper names (M i; ix, 2, 4; x, 1, 3, &c.). It is customary for a Babylonian seal inscription to contain the name of its owner and the god of whom he considers himself the worshipper, and we may naturally consider that the same holds good in Hittite, so that the patron deity here is Tesup, and that the owner's name begins with a god's name and ends with *n*(*a*)-*a*-*li*-*s*, or, having regard to the possible position of *s*, perhaps *s*-*n*(*a*)-*a*-*li*. This word *nâli* occurs in the name *Tar-ga-aš-na-al-li*, in one of the texts found by Winckler at Boghaz Keui (W 19) *mâtu âlu Ḫa-pal-la-ma a-na m Tar-ga-aš-na-al-li ad-din* 'the land of Ḫapallama unto Targašnalli I gave'. As Targu or Tarḫu[2] is a well-known Hittite god, it is not unreasonable to suppose that we have here on our seal the name Targašnâli, the king to whom Ḫapallama was given. Where the seal actually came from is doubtful.

Another proof of *li* comes from a name in M lii, 4  , as our values would show, *Gar-a-li ni IX-a-*  . The 'IX' (who appear elsewhere) are frequently an indication that a chief's name precedes; the phrase usually is 'So-and-so, a chief (&c.) of the Nine'. Hence Garali is a chief's name, and as Ḳaral קרל is known as the father of Panammu, a king of Ia'di (who also occurs

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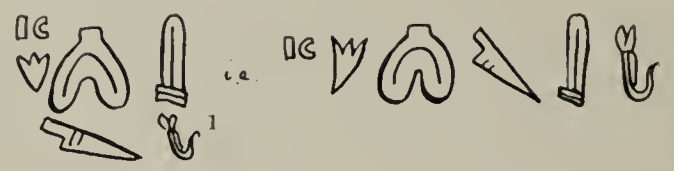
[1] In  (M vi, 2),  (M iv, A 2: B 2),  (M xxxii, 1), the second character as it stands cannot be confused with  *ir*, if the texts have been copied correctly: in the Restan text, which is practically a duplicate at this point of the Hamath texts, we find  simply, so that the additional sign probably has no material value. On the other hand, I cannot find any satisfactory comparison for this final *b*(*a*) (as § 40 shows it be) in the cuneiform texts.

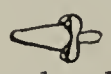
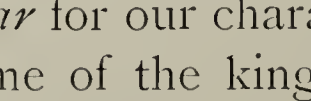
M xvi A shows a verb ending with an animal's head, but it is not quite clear whether this is *-u* or *-ir* (§ 50, 6). Incidentally, I should add that further proof that = *ir* will be found in the place-name *as-ir*, which varies with *as-r-a* (= Assyria, § 51).

[2] Knudtzon, *Die zwei Arzawa-Briefe*, 1902, p. 19, gives the following list of names in which this god-name occurs: Tarkondemos, Tarkondimŏtos, Tarkodimantos, Tarkuaris, Tarkumbiou (*gen.*), Trokoarbasios, Trokozarmas, Trokokombigrĕmis, (T)arkiônin, Tarkundberran, Tarkondarios, Dastarkon (a fortress in Kataonia), Lycian Trqqas, Trqqiz, Trqqñta, Trqqñti, Trqqñtasi, &c. As is well known, *Tarḫu* in Tarḫulara (the prefect of Gurgum or Marḳasa, *WAI.* ii, 67, 45, 58: iii, 9, 52; B.M. tablet, K 1660) is the same god.

in Hittite, § 28), from the Sinjerli inscriptions, we may consider that this identification of the two names is sound.

§ 12. On  = *ḫu* I must refer the reader to § 38, as that section is the most fitting for more proof of this value: I think, however, that the discovery of *Ḫumu* and *Ḫuni*, the forms of a personal name quoted in § 37, *note*, very probably the same as the Assyrian form *Aḫumu*, the chief of Bît-Adini, is conclusive. Moreover, I now come to a variant form of Irḫulîna's name on the large inscription from Jerabis, which mentions Sangar's name. This new form is written



This word begins a new sentence, and (when the full text is published) it will obviously be seen to be a proper name. The three middle characters we know are *-ḫu-li-ni*: the first must therefore be some compound of *-r*. Professor Sayce gave to  (which is possibly the same as our character here) the value *ar* on the grounds that it was part of the place-name Argana in M iv, A, 2, which I think is incorrect: the value *ar* for our character is, however, probably correct, as may be seen from the name of the king of Tyana[2]  . This name Professor Sayce in *PSBA.*, xxv, 1903, 192 read A-m-ar-a-s, very nearly correctly, but he unfortunately rejected his first value *ar* for another (*gal*), and read it next as Aumgalas (*PSBA.*, xxvii, 1905, 200), and finally (*PSBA.*, xxxiv, 1912, 270), as Ayminyas. My reading would make it *A-r-ar-a-s* (using our hypothesis for *r* from § 5), which can at once be compared with Ariarathes, the Greek form of a name of several kings of Cappadocia, the first one known to us from Greek sources living about the middle of the fourth century B.C.

These two examples go far to prove the value *ar*: a third, and most convincing one, is the name of Arame, spelt Ar-am, 'chief of Kask' (§ 35). We have thus proved the names Irḫulîna, Arḫulini, and have additional evidence for  = *r* from Ariarathes.

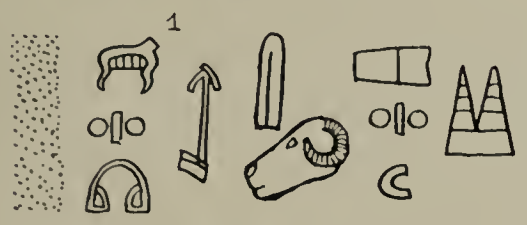
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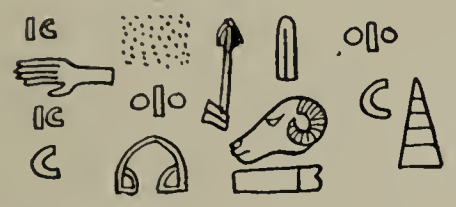
[1] I question the correctness of my copy of this character (*zi*) from the stone; if I were copying it again I should look for  or less probably  . I believe the form Arḫulini is also to be seen in M lii, 2, concealed in  (reading *ḫu* for the second syllable).

[2] M xxxiii, 1: cf. xxxi, C, 3: xxxii, 1, 2, 3: xxxiv, A, B, C.

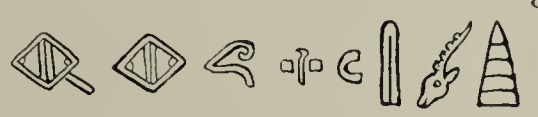
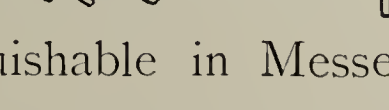
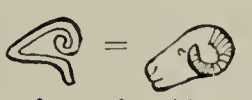
§ 13. Having now found the name of the king of Hamath, the next problem should be to find the name of Hamath itself. The Assyrian cuneiform texts give the beginning of this word as *Am-* or *Ḫam-*, so that we may look for a weakened initial breathing. As we know that  and  are the postpositive signs of a place-name, we should be able to see the name Hamath in these Hamath texts in the groups

(1)  M iv A, B, 1, and partly on M iii, B, 1.

(2)  Restan.

(3)  M vi, 1.

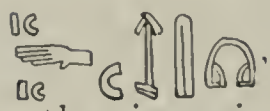
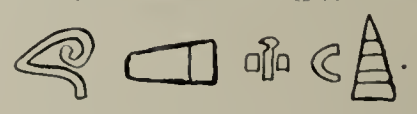
Obviously these groups are too long for 'Hamath .[2]

But all three are clearly forms of the same group. Obviously the character  of (1) is only an abbreviation of the ram's head  of (2) and (3). This is a very important point, endorsed by the two large Mar'ash inscriptions M xxi and M lii, where the place-name mentioned in each near the beginning is given respectively under the two forms  (xxi) and  (badly written, but distinguishable in Messerschmidt's copy)  (lii). Moreover, the group  of M vi, 3 (bis) will ultimately be seen to be the same as  in M xi, 2 (§ 28). Since  = as an abbreviation, we may well expect to find other animals' heads in similar abbreviations, a broad question to which we shall return later (§ 15).

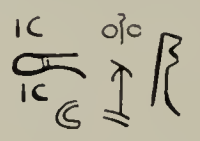
§ 14. Having thus settled that all three groups are merely variants of the same phrase, it remains to split them up into their component parts. An examination of the hieroglyphic texts generally will show that a group of signs

[1] Emend thus, instead of *ir*.

[2] See note to § 1.

very much like  , the first part of (1), (2), and (3), occurs constantly, no matter where the inscription may have come from; that is, that they are some word or words having nothing to do with 'Hamath', and consequently if the name 'Hamath' is here at all it is concealed (as was suggested many years ago, only to be rejected, § 1, *note*) in  . These passages are:

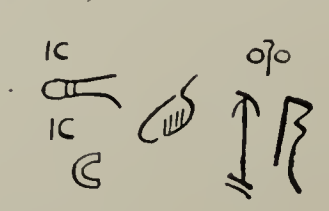
(*a*) Hamath, M iii, B 1: iv, A, B, 1: M vi and Restan. See § 13.

(*b*) Kirtschoglu, M vii, 1 

(*c*) Malatia, M xvi, 1  [1]

(*d*) Malatia, M. xlvii  [2]

(*e*) Bulgarmaden, M xxxii, 1: Bor, M xxxiii, 2: Mar'ash, M xxi, 1: M lii, 4 (two of these must be restored thus, the obvious characters being obliterated):



(*f*) Mar'ash, M lii, 1  &c.

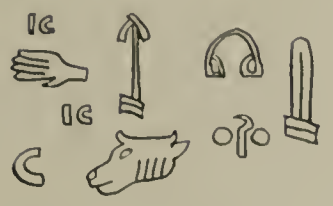
(*g*) Agrak (M xxxi); the Bogtcha stele (M li) 

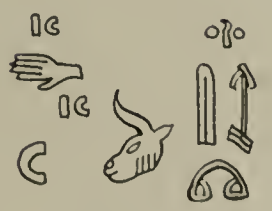
(*h*) Tel Ahmar (1) 

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[1] An examination of the photograph in Hogarth's article in *Recueil de Travaux*, xvii. 25, shows that these are possible readings.

[2] The difference between this group and the others is so marked that it would be safer to collate it before laying too great stress on it. Compare, however, no. (*k*) further on.

(*i*) Tel Ahmar (4) 

(*j*) Tel Ahmar (5) 

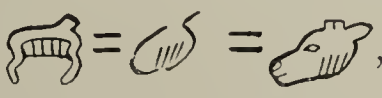
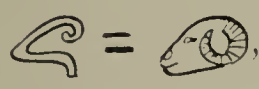
(*k*) New Jerabis 

Here are nineteen cases with very little variation, beginning with a hand outstretched, the sign being marked as an ideogram by the division-sign before and after.

§ 15. Several deductions can be made from a comparison of these groups :—

(1) The ox's head in the form  of (*f*) and probably (*c*) is represented by the form  in (*h*) and (*i*), and by  in (*j*): it becomes abbreviated to  (emended)[1] in one case in (*a*), and still further to the linear  in (*e*), (*g*), and (*k*). This equation



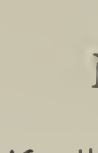
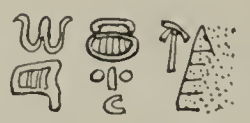
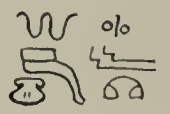
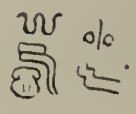
is of the greatest importance, not only because of the reading of the words in which such variant forms occur, but because it will throw light on the origin of  *ir*. For, since the ox's head takes the forms  , and the ram's head  , we can at once admit the probability of the form  , linear  *ir*, as the abbreviated forms of the unhorned calf's head  of M ii, 7, M ix, 3, M x, 1, M xv, B, 3, M xvi, 1 (?).

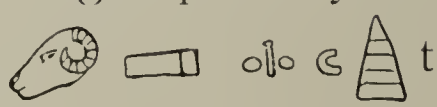
(2) The  of (*b*), (*e*) varies with the  *n-s* of (*a*), (*f*), (*h*), (*j*), and the  *ni-s* of (*c*), (*i*). Hence  = *nis*. Jensen thought that this marked the

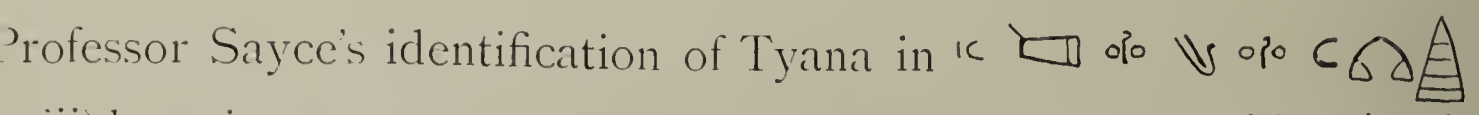
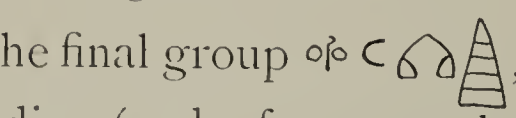
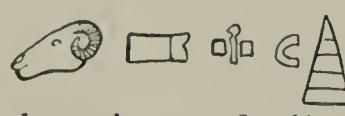
[1] This emendation of the form of this character in this passage (Restan 1) is proper from the forms shown in other Hamath texts, e.g. M iv, A 2 : B, 2 : vi, 2 : and the variations in the Mar'ash texts, M xxi, 4, lii, 4.

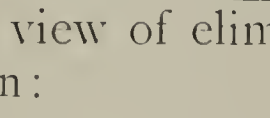
nominative case, and therefore ended in *-s*; Professor Sayce quotes him, noticing at the same time that it interchanges in M xxi with the 'goat's head' (*PSBA.* xxv, 1903, 173) ('we must assign to it the values of either *s*, *is*, *yas*, or *as*').

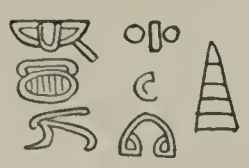
(3) The variant  = (remarked by Sayce from the Babylon inscription, *PSBA.* xxiii, 1901, 99) is made certain by these groups: the of (*a*), (*b*), (*e*), (*g*), (*h*), (*i*), (*j*) is replaced by in (*f*). This is endorsed by the evidence of the variants given in § 16, and the following comparisons:—

M xxi, 1  with M lii, 1  and M ii, 1 (the Babylon text)  ; and M iii, B, 3  with M ii, 1  and 4  .

§ 16. But our present need is to show that, as in our Hamath texts, we have a group beginning constantly with  , and differing only slightly in its other characters. Hence we may remove this group bodily from our Hamath group (§ 13), leaving the last five characters  to represent the word 'Hamath'.

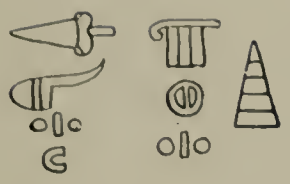
Now Professor Sayce's identification of Tyana in  (Bor, M xxxiii) has given us the value of *d*(*a*) or *t*(*a*) for  (he considers it *tu*), marking also the final group  , which is only our of the Hamath texts with a case-ending (and, of course, the postpositive 'place'). If this is a constant at the end of place-names, we can then see the word Hamath in our group  composed simply of the two signs  .

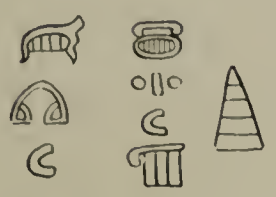
With the view of eliminating this  I append several place-names for comparison:

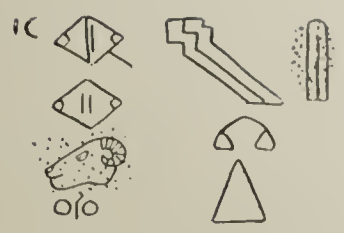
(1)  (M iii, B, 2).

[1] I see that I have accidentally omitted the small 'tang' to the character here.

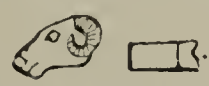
[2] Professor Sayce thought that it indicated the adjectival termination, but, as will be seen from § 39, this is impossible.

(2)  (a similar passage to (1) in M iv, A, 2).

(3)  (M iv, B, 2).

(4)  (M xxi, 1), for which M lii, 1 gives 

In these, as is obvious, although they are decidedly names of different places,  occurs in all with various terminations, and another noteworthy point is that in (4)  varies with  , as is shown in § 15 (3).

Hence  has nothing to do with the actual spelling of the root-letters of 'Hamath' in our group, and we may be satisfied that if 'Hamath' does occur on the first line of the Hamath inscription M iv, A, B, vi, it will be spelt with the two signs  .

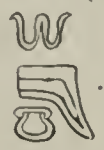
Now we already know that  = *d*(*a*) or *ṭ*(*a*), and hence, if there is anything in our theory, the ram's head  with its abbreviation  will be *Ham*, *Ȟam*, or *Ḫam*. In order to prove this it will be necessary to take a longer cast, and turn to the large new inscription from Jerabis.

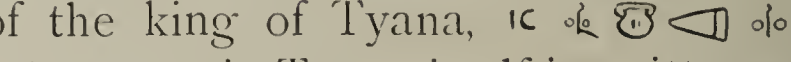
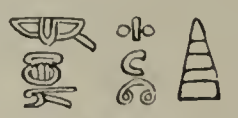
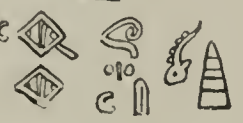
§ 17. This inscription, as we have already seen (§§ 3, 12), contains the names of Sangar and Irḫulina. A further examination convinced me that there were many more kings' names on it, and I shall now discuss them.

If the Hittite hieroglyphic inscriptions be carefully examined it will be seen that certain groups are indicated by a stroke, frequently diagonal ⧹, placed in front. More particularly is this so in places where we should expect a proper name, i.e. after the first or second word. For instance, Mar'ash, M xxi, begins  (and  is thus represented twice more in this inscription)[1]; as we saw in § 3, the name Sangar is also marked by  ,[2] and again in l. 2 of the

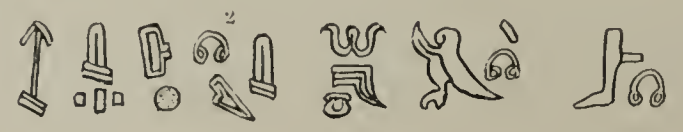
[1] The first figure is to be seen on the lion in the cast in the Museum (see note to § 1).

[2] From this (slightly obscure) diagonal  it is clear that the first part of this word is not to be

same inscription we find  . In M ii the first words are  . On the other hand, in the Mar'ash inscription M lii, which begins in a similar manner to M xxi (also Mar'ash), quoted above, and M xvi, A, the  appears to be left out from  . This sign is therefore not a necessity, but where it does occur we can at once suspect a proper name.

But this sign added to proper names throws a new light on certain small tangs which are found affixed to certain characters, as has been suggested in the sign *ir* in Irḫulîna. The name of the king of Tyana,  *A-r-ar-a-s* (M xxxiii, 1, &c.) begins with *A* + 'tang': Tyana itself is written with its first character  , i.e. *Ṭ(a)* + 'tang'. In M iii, B, 2  is a place-name; so also  &c., in the Mar'ash inscriptions (M xxi, xxiv, xxv, lii). These are definite examples of both place- and personal-names, and with this clue it will be easy to recognize the position of a certain number of names in the inscriptions.[1]

§ 18. Proceeding with this tang-clue, we may examine the text on the lion-hunt slab from Malatia (M xvi, A). This begins

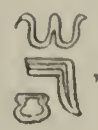
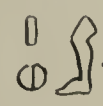


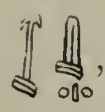
i.e. *mi-mi-a* (or ') [ ] *li-e-ni*,  ,  'tang'-*s*  'tang'-*s*. Whether the first

compared (as Sayce took it to be) with  , the word ordinarily placed second after  at the beginning of inscriptions.

[1] It must, however, be noted that in certain cases characters marked by a tang do not denote a proper name, but in some respect call attention to it, and apparently the tang sometimes indicates a vowel sound.

[2] I would suggest, in spite of the evidence afforded by M xvi, C (Menant) and the Malatia inscription published by Sayce (*PSBA*. xxvi, 1904, 23; see M xlvii), both of which read  , that we should read *ḫu* here, making the whole -*ḫu-li-e-ni*, and providing some value **r* for , so that the whole may represent Irḫulîni. Two of the other kings at least in this inscription are known to be his contemporaries from the hieroglyphic texts. At the same time this is only a suggestion until we have a certain value for the first character: for another possibility see p. 112. On *e* see § 46.

king be Irḫulîni or not, it is clear that his name is followed by three other names, the first a most famous and ubiquitous one  , well known from the 'Babylon' inscription M ii; Aleppo, M iii, A; Hamath, M iii, B: here in Malatia; Mar'ash, M xxi, lii; and in the long inscription from Jerabis. The king marked by  is found in a new Jerabis inscription, and  -*s* occurs in the Tel Ahmar inscription (l. 4) as  . We have thus the names of four contemporary kings.

§ 19. The first word *minia* or *mini'* calls for a remark. We have seen (§ 6) that  *mi-'*, the probable equivalent of the *me-e* on the 'Tarkondemos' Boss, followed by a (king's) name, means 'I (am)': there need then be little hesitation in translating *mini'* as 'we (are)', since four names follow. It occurs here, and in the two others from Malatia, where the kings' names differ considerably, M xvi, C  &c., and Sayce, *PSBA.*, xxvi, 1904, 23 (M xlvii)  , &c.

We have, therefore, several names, many of which will be found to occur elsewhere, and all contemporary, dating from the ninth century B.C. What is also important is that an inscription may contain several names (all presumably kings or chiefs) together, to which I would draw attention, because it is a clue to the reason for the existence of so many Hittite inscriptions, which will be seen to relate to alliances between the various chiefs. It so happens by good fortune that our knowledge of the names of the petty kings who ruled the lands near Carchemish at the time of Sangar and Irḫulîna is extremely good, and, at the risk of being prolix, I think it is an apt place to give a brief *résumé* of the history of this period as we find it in the cuneiform records of Aššur-naṣirpal and Shalmaneser.[1]

§ 20. Little definite is known of the history of Assyria during the period after the great conqueror Tiglath-Pileser I (*c.* 1100 B.C.) until the first quarter of the ninth century when Aššurnaṣirpal came to the throne. Little by little apparently the lands conquered by his fathers had seceded from the Assyrian

[1] I am indebted for much of this historical sketch to Maspero's *Passing of the Empires*, where an excellent and full account of the conditions prevailing in the Hittite lands in the ninth century is given.

empire, and on his accession he found a diminished kingdom, with its boundaries contracted to a small compass. To his energy is due the regeneration of his country and the expansion of the Assyrian empire, which was to attain more than its pristine glories under the next king Shalmaneser II.

Aššurnaṣirpal's first campaign was directed against the districts north-west of Assyria, even as far as the sources of the Tigris; the next campaign in this same year was pressed still further westwards as far as Kummuḫ (Commagene)[1] and Mushku. The news of these successes spread abroad, and in consequence many of the neighbouring tribes sent to pay homage; the Laḳî (supposed to be principally on the right bank of the Euphrates between the Khabur and the Balikh), Ḫaianu, king of Ḫindanu (in Shalmaneser's time there is a Ḫaianu, king of Samal); in the next year the Suḫi on the Euphrates sent their chief Iluibni to Nineveh with gifts. But a revolt in the north-west again broke out, and Aššurnaṣirpal again marched to the sources of the Tigris and punished the rebels. After this success he received the homage of the neighbouring princes, including Amme-baal[2] of Bît-Zamani; at Ardupa he took tribute from one of the Hittite kings. As Maspero says (p. 21), in less than three years the Assyrian king had forced the marauders of Naîri and Kirḫi to respect his frontiers.

§ 21. It was next in 880 that he took the field against the north-west, receiving as usual at first the tribute of Kummuḫ. It was at this unfortunate hour that the people of Bît-Zamani, not caring for the Assyrian tendency of their chief Amme-baal, murdered him, and set Bur-Ramânu on the throne; the Assyrians avenged his death, flayed Bur-Ramânu, appointed Ilânu his brother to succeed him, and mulcted the inhabitants in an enormous tribute.

This increase in power in the Assyrian state led the tribes to the west again to give trouble, and the two chief tribes, the Suḫi and Laḳî, made overtures for help to Babylon. But, although help was given, in the end the Assyrian arms triumphed, and the Suḫi and Laḳî were defeated, being pursued for two days as far as the frontiers of Bît-Adini, the state which lay between the Balikh and the Euphrates, as far north at least as Tel Ahmar, the ancient Til Barsip.[3] From this date onward for a quarter of a century the Assyrians had

[1] For the latest evidence of the position of Kummuḫ, see L. W. King, *PSBA.*, xxxv, 1913, 73.

[2] Am-me-ba-'-la, the son of Zamani. The name appears to be Semitic. This *Amme* may well be the same as in Pan-ammu, the name of two kings of Sam'al (Sinjerli) some distance west of Bît-Zamani (cf. Heb. עַמִּיאֵל, the father of Bath-Sheba, 1 Chron. iii. 5). Hence Amme-ba'al may mean 'Amme is (my) lord', just as Pan-Ammu would mean 'Face of Ammi' (cf. the Phoenician phrase פן בעל and the Heb. name פְּנוּאֵל).

[3] Thanks to the kindness of the Trustees of the British Museum I was allowed to publish one of the results of an expedition on which they sent Mr. T. E. Lawrence and me from Carchemish to

to reckon with Aḫuni the *shêkh* of this land of Bît-Adini, a recurrent enemy who was in touch with the many Hittite states, and held the approaches to Carchemish from the East, one of the great main roads to the sea. Yet Aššur-naṣirpal wasted no time in securing a certain measure of homage from him: he invaded his territory in 877 B.C., and received tribute from him after a sanguinary encounter.

§ 22. It was in 876 that, having again received tribute from Bît-Baḫiâni, Azalla, and Bît-Adini, the Assyrian king came face to face with the loose-knit Hittite power which had been uneasily watching the gradual ascendance of a foe who had been scotched for two hundred years. Carchemish was its eastern outpost, a citadel built on a high mound abutting on the Euphrates, with the landward side enclosed by a widespread rampart; a palace lay at the southern foot of the mound. The citadel itself covered the top of the mound, with its main postern in the middle, where the dip still shows where the road of cobbles and pebbles ascended to the gateway; Shalmaneser portrayed it two or three times on his bronze gates at Balawat. Yet this outpost, although apparently solid behind its river defences, had never withstood the foe from the east, and well might the little states of mountain and plain, even down to great Damascus, grow timorous at the growth of the great robber. Indeed, Isaiah's vivid utterance of the paralysing terror of his approach marks what all these petty nations must have felt at any time from now down to the end of the seventh century: 'He is come to Aiath, he is passed to Migron; at Michmash he hath laid up his carriages: they are gone over the passage: they have taken up their lodging at Geba; Ramah is afraid; Gibeah of Saul is fled. Lift up thy voice, O daughter of Gallim: cause it to be heard unto Laish, O poor Anathoth. Madmenah is removed; the inhabitants of Gebim gather themselves to flee.'

At any rate, this expedition of Aššurnaṣirpal to the land of the Hittites came apparently in the nature of a surprise, for none of these independent states gave serious trouble to the conqueror, most of them yielding at once on sight of his army, and paying tribute without further ado. It was an extraordinary progress. Sangar of Carchemish preferred discretion to fighting, and gave the Assyrian king great gifts, besides sending Carchemishian chariots, cavalry, and infantry with the Assyrian host. Aššurnaṣirpal pressed forward to Ḫazaz, an outlying city belonging to Lubarna, took tribute from it, and crossed the Ifrîn, moving on Lubarna's capital Kunulua. Lubarna imitated Sangar,

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Tel Ahmar, a copy of the fallen lions inscribed in cuneiform which Mr. Hogarth had seen on his visit there. The inscription thereon shows beyond a doubt that Til Barsip was Tel Ahmar, and not Birejik (see *PSBA.*, xxxiv, 1912, 66).

and bought himself off with gifts and service; Aššurnaṣirpal made the city Aribua his base, whence he was able to punish the recalcitrant tribes of Luḫuti and ultimately continue his triumphant march to the Mediterranean. He washed his weapons in the Great Sea, and actually received the tribute of Tyre, Sidon, Byblos, Maḫalata, Maiṣa, Kaiṣa, Amurru, and Arvad. It was a great feat, and one which was to have a far-reaching effect on the Near East.

The sixteen remaining years of his life were marked only by one campaign in 867 (to the north of Assyria), and the first part of his march was spent in gathering the usual tribute from the districts of Ḳipani, Ṣalla, Aššа, and Kummuḫ. Thence he moved by Aššа and Kirḫi to the hostile districts of Adani, and after much fighting reached Amida, and ultimately returned home. He died in 860, and his son Shalmaneser II (Šulmanu-ašarid) succeeded him.

§ 23. It cannot be supposed that the inhabitants of Syria, Palestine, and Cilicia were willing to sit down with folded hands and accept quietly the situation which was forced on them by Aššurnaṣirpal's daring raid. True, they had, as far as we can see now, been caught napping, and each one of them had been compelled to yield in turn before ever they could combine in the usual Hittite fashion against the common foe. For the Hittites had always loved the making of alliances; it was the one safeguard which these heterogeneous states possessed either to protect themselves against bullies such as Egypt or Assyria or to mete out punishment to troublesome neighbours. Ever since the days of Rameses II, when the Egyptians made alliance with Khetasar, prince of the Hittites, they had recognized the principle of union.[1] The Assyrian raid of 876 gave the necessary impetus, and for sixteen years the kings and princes of the lands of Northern Syria and Palestine made their preparations quietly for defensive alliances against Assyria.

§ 24. The storm burst when Shalmaneser ascended his father's throne in 860. First he was compelled to attack Ninni of Simesi, and thence he assailed Kâki (or ·Kakia) of Hubuškia or Nairi, pressing as far as Sugunia, a fortress belonging to Arame, the king of Urarṭa. Only a little while later came the beginning of his Syrian wars, when he set forth again from Nineveh westwards against

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[1] An interesting example of this is found on the Aramaic stele discovered somewhere in these regions by Pognon (where exactly he will not reveal) and published by him in *Inscr. Sem.*, p. 158. It is a stele written by Zakir, king of Hamath and לעש, who describes his fight against 'Bar-Hadad, the son of Hazael, king of Aram' who had united against him the following coalition: 'Bar-Hadad and his army and Bar-Ga'š and his army, the king of Ḳaweh (Ḳauai) and his army, the king of 'Amḳ (Assyrian Unḳi) and his army; the king of Gurgu[m] and his army, the king of Šam'al and his army, the king of Malaz (Malatia) and his army.' Noticeable is it that Kummuḫ is not mentioned.

Aḫuni of Bît-Adini, who had now joined one of the great alliances formed by the kings of those of the Hittite and Syrian states which lay nearest Assyria. After a preliminary skirmish with Aḫuni, whose country on the east of the Euphrates was naturally the first to withstand the Assyrian onset, Shalmaneser pushed on to the Euphrates, after receiving the tribute of Ḫapini of Til-âbna, Ga'uni of Sar[u] . . ., and Giri-dadi of Aššа. He crossed the river, and received his usual tribute from Ḳatazilu of Kummuḫ, a country always subservient at this period to the Assyrians, and captured several of Aḫuni's towns on the west of the Euphrates. He went as far as Gurgum, where the king Mutallu paid tribute and sent his daughter into the Assyrian harem,[1] and then encountered the allied forces under Ḫaianu of Samal, Sapalulme of Patin, Aḫuni, and Sangar of Carchemish, and defeated them. He attacked the allies again near the Orontes, where they had been reinforced by Katê of Ḳauai, Piḫirim(?) of Cilicia, Buranate of Jasbuḳa, and Ada . . ., and once more defeated them, and then he received the tribute of the kings of the sea-coast, finishing his campaign with presents from Arame of Bît-Agûsi. He assessed a yearly tribute on Sangar of Carchemish and Ḫaianu, and secured the fidelity of these kings by receiving their daughters in marriage. At the same time, for reasons stated in § 87, this may possibly have been some years later, after 850 B.C. There were, of course, the usual doles from Ḳatazilu of Kummuḫ. He fought another battle with Aḫuni, drove him across the Euphrates, and made that river his western boundary, establishing in 857 an Assyrian garrison at Til Barsip (Tel Ahmar). Here he set up a large monolith sculptured with a representation of himself, and adorned one of the gates in the enceinte with two lions inscribed with a cuneiform inscription recounting his prowess.

He had thus secured the crossing at the Euphrates should need arise for another expedition to the west; next he was compelled to deal with Ar(r)ame, the king of Urarṭa, whom he defeated with great loss, and during this campaign he again attacked Kâki, the king of Ḫubuškia, with similar success.

§ 25. But the great struggle for which the lands of Syria and the Hittites were preparing was not long to be deferred. Hitherto the great kingdom of Damascus had avoided coming to blows with Assyria, and, as Maspero (p. 41) well points out, Aššurnaṣirpal in his raid had discreetly confined himself to the left bank of the Orontes: 'it was Damascus which held sway over those territories whose frontiers he respected, and its kings, also suzerains of Hamath and masters of half Israel, were powerful enough to resist, if not conquer, any

[1] The texts say nothing of Mutallu joining the coalition of Aḫuni.

enemy who might present himself.' But the king of Damascus, at this time Benhadad II (Adad-idri), who appears to have been a very shrewd diplomatist, can have had no easy feelings at these incursions, and he assumed supreme control over a great alliance wherein were found as confederates Irḫulîna of Hamath, Ahab of Israel, the troops of the lands of Ḳauai, Muzri, Irḳanata, Usanata, as well as those of Matinu-ba'al of Arvad, Adunu-ba'al of Šiana, Gindibu' the Arab *shêkh*, and Ba'sa the son of Ruḫubi of the Ammonites. Their numbers are given at nearly four thousand chariots, nearly two thousand cavalry, a thousand cameleers, and between fifty and sixty thousand infantry, all described in the official Assyrian records as the forces of Adad-idri, Irḫulîna 'with the kings of the Ḫatti and of the sea-coast'.

It was in 854 that the smouldering fire broke out. Shalmaneser had set out to punish Giammu, the *shêkh* of a district near the Balikh river, no great distance from Nineveh, and the people of his tribe, fearing the Assyrians, murdered their chief. So he collected his revenue in Pitru[1] from the members of that Hittite coalition, most of whom had fought him so short a time previously: Sangar of Carchemish, Kundašpi of Kummuḫ, Arame of Bît-Agûsi, Lalli of Milid, Ḫaianu of Samal, Kalparuda of Patin, and Kalparuda (*sic*) of Gurgum. This over, he proceeded to Aleppo, where he made sacrifices to Tesup (Adad), the great god of the Hittites, and then captured the towns Adinnu, Maš-(or Bar-)gâ, and Arganâ[2], belonging to Irḫulîna of Hamath, an overt act of hostility which roused the Hittite coalition about his ears. The two armies met at Ḳarḳar, and, as Maspero says, the battle was long and bloody, and the issue uncertain, yet not unfavourable to Damascus. It showed to the Hittites that the old virtue of alliances was still as strong as ever, and in consequence Shalmaneser was obliged to suppress a revolt in Til-abni the very next year; a serious war in Babylonia occupied two years (852-851), and in 850 Sangar of Carchemish and Arame (of Agûsi) again gave trouble, doubtless because the pressure from the Assyrian side was lightened. Maspero remarks that, since the indecisive battle of Ḳarḳar, the western frontier of the Assyrian empire had receded as far as the Euphrates, and the king had been obliged to forego the annual Syrian tribute, but now that the Babylonian war was ended the Assyrians could again assail Syria. In 849 the army was mobilized for the second Syrian campaign, and the Syrian army of Benhadad, with the twelve kings of the Hittites, met the Assyrians, and although the latter records claim a victory, it

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[1] Are we to see on the slab from Carchemish M xii, 2 (perhaps a fragment of No. 1, which is sculptured with an Assyrian winged figure) the name Pitru (Witru) in *M-t-r* (= *W-t-r*)-'country' + 'king'?

[2] On the Bronze Gates of Balawat is represented the capture of another city 'Aštamaku of Irḫulini'.

seems almost less probable than in 854, for for three years little was done. Again in 846 the two forces joined battle again, the Assyrian army this time numbering 120,000, but the results seem in no way to have favoured the Assyrian arms, and Syria had rest from Assyria until the death of Benhadad when he was smothered by Hazael.

§ 26. From this point onwards the good fortune of Damascus waned. To quote Maspero,[1] 'It was to Benhadad that it owed most of its prosperity; he it was who had humiliated Hamath and the princes of the coast of Arvad, and the nomads of the Arabian desert. He had witnessed the rise of the most energetic of all the Israelite dynasties, and he had curbed its ambition; Omri had been forced to pay him tribute, Ahab, Ahaziah, and Joram had continued it; and Benhadad's suzerainty, recognized more or less by their vassals, had extended through Moab and Judah as far as the Red Sea. Not only had he skilfully built up this fabric of vassal states which made him lord of two-thirds of Syria, but he had been able to preserve it unshaken for a quarter of a century, in spite of rebellions from several of his fiefs and reiterated attacks from Assyria. Shalmaneser, indeed, had made an attack on his line, but without breaking through it, and had at length left him master of the field. This superiority, however, which no reverse could shake, lay in himself and in himself alone; no sooner had he passed away than it suddenly ceased, and Hazael found himself restricted from the very outset to the territory of Damascus proper. Hamath, Arvad, and the northern peoples deserted the league, to return to it no more.'

Hence in 842 Shalmaneser again crossed the Euphrates and challenged Hazael; a bloody battle was again fought, Hazael lost an enormous number of infantry, cavalry, and chariots, and yet merely ran away to fight again another day. Meanwhile the Assyrian king, after fruitlessly besieging him in Damascus and destroying the pleasant gardens about it, carved a monument to himself on a rock, and received tribute from the kings of Tyre and Sidon, and Jehu.

§ 27. Two years later Shalmaneser set forth to punish the different chiefs who had taken part in the coalitions against Assyria, dealing with each one singly, now that they were no longer allied, so that they collapsed utterly. The Ḳuaui were the first to bear this fresh attack in 840; in 839 there was another campaign against Hazael, and the usual receipt of tribute from Tyre, Sidon, and also from Gebal; then again for two years (838–837) to the north-west to Tabal, where twenty-four chiefs were reduced to subjection, and Uetaš (*Ordasu* ?), the stronghold of Lalli, the king of Malatia, was captured. A cam-

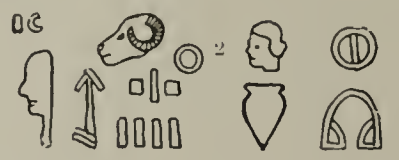
[1] *Passing of the Empires*, p. 83.

paign in Namri in 836 drew the Assyrians away from these regions for a short time; but they were back again in 835, receiving the tribute of 'the kings of the Hittites', and invading the land of Ḳauai, where Timur, the fortress of its chief Katê, was assaulted, and Mûru, the castle of Arame, son of Agûsi, was taken over by the Assyrian king. In 834 'for the fourth time' Katê was attacked, and deposed by the Assyrians in favour of his brother Kirrî; they actually reached Tarsus. In the following year, under the Assyrian general Dayan-Aššur, they invaded Urarṭa. Arame of Urarṭa had ceased to be ruler here by this time, and Seduri (=Sarduris[1]) had taken his place; but a revolt in 832 among the Patinai, who killed their king, Lubarna, and put Surri on the throne, evidently occurred too early for the Assyrians to take full advantage of their initial successes in Urarṭa. Dayan-Aššur was dispatched against them, punished them, and put Sâsi on the throne. For the next three years the Assyrian army was occupied on the north-west frontier, against Kirḫi and Ḫubuškia, as far as the Mannai; and then, shortly afterwards, arose the internal troubles, when Aššur-danin-pal, the son of Shalmaneser, raised the standard of revolt against his father, only to be put down by his brother Šamši-Adad, who ultimately came to the throne in 824. His records show at once how great the cataclysm had been, and although he was perpetually at war, he never regained the whole of his father's kingdom, and apparently was only able to restore the western boundary of the empire to the line of the Euphrates at Carchemish.

§ 28. So much for the Assyrian records of the ninth century when Sangar and Irḫulîna were ruling their respective cities. I have gone thus fully into this history, because I believe that the system of decipherment of the Hittite hieroglyphs which I am putting forward will show, as I have mentioned before, that many of the Hittite inscriptions hitherto published deal with alliances made by the Hittite, Syrian, and other princes and kings of this date, and that many of the names which occur in Shalmaneser's records are to be found on them.

First, to complete the proof that  = *am*, *ham*, or *ḫam* (§ 16).

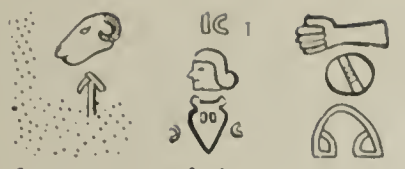
Take first a quotation from the new long inscription of Jerabis:



In M xi, 2, we find  , and in M xv, B, 3  , all Carchemish

[1] Pointed out by Sayce in *JRAS.* xiv. 44.

[2] Read  for my copy.

inscriptions. Similarly in a new Jerabis inscription  where we are justified in restoring the first group in accordance with our other three inscriptions by reason of the group which follows it. Lastly, compare  (M vi, 3, *bis*, a Hamath text).

Now if it were not for the obvious addition of the 'tang' to the head-dress on the face, in M xi and xv, we might consider that this group was merely some recurrent grammatical expression; but this 'tang' entirely justifies us in believing that this group is a proper name, and, as Sangar and Irḫulina are also on the long new inscription, it is reasonable to see in it a contemporary chief. The last character we know to be *-mi*; we have the suggested value *am*, *ham*, or *ḫam* for the ram's head (from the name of Hamath, § 16): so that we have to identify a king's name written in three characters, the first of which is a head of which the back part has been cut away so as to leave only the face (this is distinct in the long inscription) followed by *-ammi*, *-hammi*, or *-ḫammi*. With which of the numerous kings' names of this period can we identify it?

The known names of this period which correspond to this final *-ammi* are Giammu, Kalammu and Panammu. Now it has been mentioned in § 2 that Assyrian words were absolutely and without doubt adopted by the Hittites in their cuneiform writing, and one of them which stands out as certain is the word *pani* used for 'before', and literally 'face'. Hence we are at once led to see in  the name Pan-am-mi. Two kings of this name are known from the Sinjerli inscriptions, one the son of Ḳaral (of Ia'di), the other the son of Bar-ṣr (of Samal).[2] The latter Panammu died during the reign of Tiglath-Pileser II, i. e. some time after 745; Sachau assigns the date 790 (?) to the former, the son of Ḳaral. But we must either see in our Panammi of the Hittite hieroglyphs a grandfather of this Panammu, and father of Ḳaral (according to the usual and well-known method of preserving the grandfather's name in the grandson) or what I think is more probable, and quite reasonable, we must assign an earlier date to the first Sinjerli Panammu, allowing at least 100 years to the three reigns, Panammu I, Bar-ṣr, and Panammu II, and consider that Panammu I was reigning about 845. This theory for the reading Panammi is well supported by the discovery of the name Ḳaral under the form *G(K)ar-a-li* in M lii, 4 [written by Benhadad] (§ 11); and we can thus assign M lii to a date earlier than M vi, xi,

[1] This group (the brother of Panammi) possibly occurs on M vii, 1 badly written.

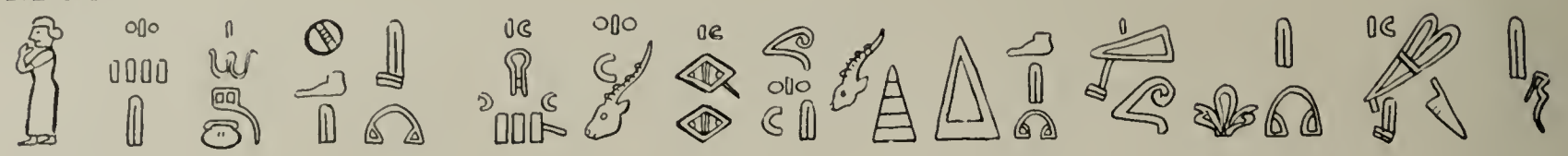
[2] See Cooke, *North Semitic Inscriptions* (the Sinjerli Inscriptions).

and xv, b, and possibly than M xxi and ix (see § 52, *note*). From the inscriptions of Shalmaneser we learn that Samal was ruled by Ḫaianu certainly in 854, and hence Ia'di and Samal must have been separate kingdoms at this time.

Thus is our assumption that  = *am* confirmed, and that our suggestion for the identification of 'Hamath' in § 16 is sound. (For additional proof of the occurrence of Panammu's name, from the probability of the phrase 'Bar-Ḫayâ, his brother', see § 73 (*c*)).

§ 29. With this  *am*, we can turn to a passage in the Mar'ash inscriptions which contains this sign in two names.

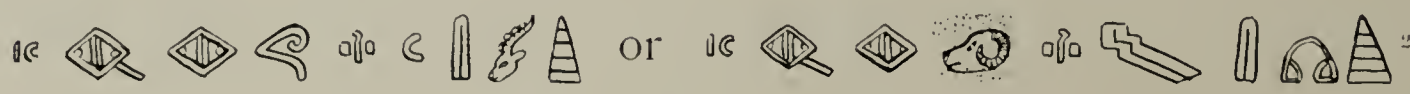
M xxi—

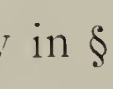
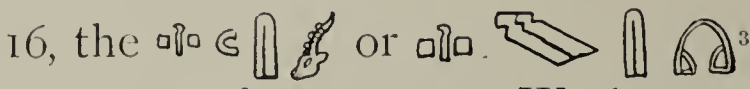


M lii—



Both of these inscriptions, as is clear, have as their subject the chief or king  speaking. The name of the country in which these inscriptions were found is presumably contained in

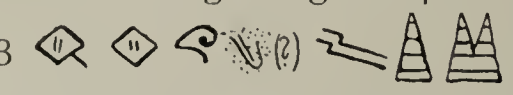


As we saw in § 16, the  or  may be disregarded for the present as not being part of the name. We have therefore to find the name of the country in  .

The first character is clearly the same as the second with the addition of

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[1] Restored from parallel at beginning of l. 4 and M xxi, 2.

[2] Also in M xxv, 3  and xxiv, b  , all from Mar'ash.

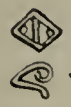
[3] From these two variants a value *'s* is suggested for  , which takes the place of  . This is also apparent in two other cases in the two quotations above. The ibex's head never, as far as I know, takes the place of *s* after *i* (in *ni*, *mi*), and hence we must read it *as* or *us*. The former becomes a certainty when we consider *K-as-k* (Kaškai, § 35), *As-ir*, *As-r-a* (Assyria, § 51). (See note to § 1.)

the 'tang', which indicates proper names, so that the name will begin with two syllables or characters the same. Now the name of the city of Mar'ash, long known to be the ancient Assyrian Marḳasi, is obviously unfitted for this identification: but the same cannot be said for the district Gurgum in which Marḳasi lay.[1] For the letter *r* as a medial has always given trouble, and tends frequently in ancient transliterations to drop out altogether; even at this very period with which we are concerned the king of Urarṭa is called Sêduri by Shalmaneser, a form now generally recognized to be intended for the Sarduri of the later periods. The Ṭurušpâ of the Assyrians became Θωσπία in Greek script, דרמשק varies with דמשק: Γαυγάμηλα is the modern Karamles (which seems to point to an ancient Kar-gamili) containing similar consonants to Gurgum-Gugum.[2] Secondly, we have already proved that  = *am*, and hence if we apply the word Gu(r)gum to our hieroglyphic group we should get



Gu - gu - am

which is quite plausible. If this be so, then it will probably lead to our reading  as *'m*[3] (*am* and *um*); the problem before us is then to prove from elsewhere that  = *gu*.

Now in the Tel Ahmar inscription (l. 3) there occurs a proper name marked by the 'tang'  . This name occurs in the proper names of Malatia, M xvi, c as  , quoted in § 19: if this be read according to our sign values we shall obtain a name, probably that of a chief, Gu-am or Gu-'m, and we can recognize in this the name of the chief Giammu of the district near the Balikh river, not far from Tel Ahmar and Carchemish. As is mentioned in § 25, his district was invaded by Shalmaneser in 854, and his own people murdered him.

§ 30. In M xxi, 1 (quoted above, § 29) we find a group  ,[4] which

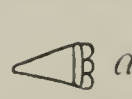
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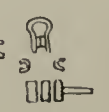
[1] *Tarḫulara* is prefect of Gurgum (*WAI.* ii. 67, 45, 58: iii. 9, 52) or Marḳasa (Assyrian tablet in B.M. K 1660).

[2] It must be remembered that both Assyrian and Aramaic forms of Gurgum would be transliterations of the native name.

[3]  *u-'m-k* = *Unḳi* = *'Amḳ* occurs on T.A. 4. See § 52 (5).

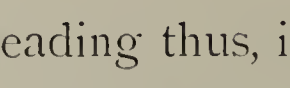
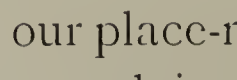
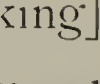
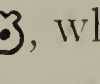
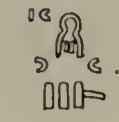
[4] That the word ends here is clear from a comparison with M lii, 1 (quoted also § 29), where  (parallel with  which follows our word immediately in M xxi) is clearly a distinct word.

appears from its 'tang' to be a proper name: it occurs also in l. 3, the first character being  . Now this character appears nowhere else, as far as I know, and since the stone lion on which the inscription is carved is crowded with characters, it is very probable that we have here a 'conflate' sign made up of  *ar* and  , so that we can read the whole group as Ar-am-mi. Now Arame is the name of both the king of Urarṭa and the king of Bît-Agûsi, neither of them far from Mar'ash, and both were defeated by Shalmaneser (§ 24). In M xi, 4 he is called 'Ar-am, chief of K-as-k', i.e. Kaškai (§ 35), and from this and from the propinquity of his name to that of Sangar in the Assyrian records we may assume that the Arame of Bît-Agûsi is meant.

§ 31. Proceeding with these same quotations from the Mar'ash texts, we have seen that  is a king's name, to which is added  and  in M ii: here in M xxi and lii this addition is affixed to the word  (in the form of  and ). Hitherto we have only commented on this addition in place-names, but clearly from our quotations from M ii it may be also added to personal names. Hence, since we have already identified Gurgum, the place-name immediately following  , we can see a personal name in this latter group.

The connexion of this personal name with Gurgum in the Mar'ash inscription is settled for us quite simply by the Hittite seal figured in M xlii, 5, on which the inscription runs down one side



and up the other  (reading thus, in this order), i.e. it is duplicated, as in the 'Tarkondemos' Boss. Here clearly is our place-name,  *Gu-gu-'m* = Gurgum, with  as [king] of it. The seal inclines us to the reading of the signs in the order  , which is favoured by T.A. 1,  and M ii, 1,  ; but on the other hand M xxi and lii give  . Nevertheless, in whatever way it is to be read, we have proved that

 or [1]

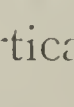
was the name of the king of Gurgum contemporaneous with Arame, and of the two kings who we know were living about this period, Mutallu and Kalparuda, the former from the shortness of its appearance seems the more probable. In order to show that the second hieroglyphic group above really is Mutallu we must turn aside for proofs on entirely fresh lines.

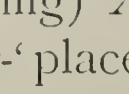
§ 32. If the various 'hand'-signs be examined it will be seen that  (forearms crossed, probably in order to make blood-brotherhood) is probably a 'stenographic' form of the hieroglyph  of M x, 1 (see § 1), and from this latter we obtain the clue that the former also is an ideogram for 'alliance' or 'brotherhood'. By pursuing this idea further it is not far to  , the hand holding the dagger, which Professor Sayce at first considered to express the idea of 'killing' or 'conquering' (*TSBA.* vii, 1882, p. 276), and altered later, I believe erroneously, to 'great'. His first idea was, I think, much nearer, and personally, like Dr. Rusch, I believe it gives the idea of 'fighting' and hostility. The hand holding the graving-tool  similarly gives the word for 'engraving'.[2]

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[1] If the cast of the Mar'ash lion in the B.M. (M xxi) be examined it will be found to have the second paragraph (i.e. the end of l. 1) thus: 'Benhadad unto the son of his brother . . . li' (i.e. Mu-tal-li?); and in the middle of the second line it is possible that four characters read *Mu-*tal-li-s (see translation at end).

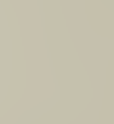
[2] We find similar ideas in Egyptian ideographs,  = 'to give',  = 'to grasp',  'to fight'. The Hittite  and  may then be suspected to mean 'to take' and 'to place' respectively. This hand holding the graving-tool occurs in M iii, B, 3; iv, A, 3 (and is broken away in B), where presumably Irḫulina says 'I have graven our covenant (?) with (So-and-so)'. Similarly in a new Jerabis inscr. (see § 68 (10)) 'So-and-so hath graven (?) covenants with me'. That it does not mean simply 'to write', as I first thought, is shown by M ii, 4 'our allies have graven the leg (?) (= base?) of the memorial (?)' (see § 48 (5)); moreover, the picture in the hieroglyphs points to a large tool held in the grip, unlike a pen. As is shown in § 48, we have the root *t-e* certainly meaning 'to say' (in M ii, 5 this is paralleled by the ideograph 'engrave'); a third root *s* which occurs in similar passages must have a similar meaning, and I propose the value 'write' on the following grounds:—The actual root is certain from the word *s-r-a* following chiefs' names (in exactly the same manner as *t-e-r-a* 'they say'); e.g. '(NN in the land of?) *s-r-a: kat-n: t-e: I;* have written, We are of one speech (accord),' &c. (TA 4: § 61) (cf. . . .; *ṭ(a) s-r-a* 'enemy': *I-k-n-m: g(k)-mu e-a-ṭ(a)* 'have written, Against my (? = our?) common enemy I will go with thee', TA 3). Cf. also M xxxii, 3 . . .? *an-nas ID* (or *U-*) *Am-k: ID; -n s-r-a:* 'god'-'friend'*-k-ni-nis-k-n: Kar-a-tal*(?)*-k-n*, '. . . . annas, chief (?) of Amḳ a . . have written: Unto (*or*, By?) the god of (our?) friend, unto Karatal(?)' (see M. xxi, 2, 5, 6, comparing

§ 33. On the analogy of these suppositions let us suppose that  , the hand outstretched in welcome, so constant in the groups in § 14, indicates 'friendship', and compare the opening phrase of the two Mar'ash texts M xxi and lii quoted in § 29. The first part of the sentences is the same in each case, except for the vertical hand  varying with  . The first group  is 'saith' from § 9: hence the line in M lii will begin—

'Saith (king) X 'friend'-*k-n-ni-s* (king) Y (Mutallu ?)-*a-* . . . *-s* [of] *Gu-gu-'m-a-*  *-n-s-*'place'.

Now the postpositive *k-n* (cuneiform *kan*) is already known from § 7 to mean 'to', and as an examination of the cuneiform texts will show that *-š* is the suffix of the third person singular (§ 57) we may suppose that we have a possessive here, placed after the *k-n*, 'Saith (king) X unto his friend (?) (king) Y (Mutallu ?) of Gurgum'. A comparison of similar texts will show that this is

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there 'god'-'brother'-*k-ni-n-nis* and 'god'-'friend'-*k-ni-nis*). The perfect of this verb *s* with the augment occurs in a new Jer. inscr. in the form *a-s-t*. 'So-and-so: *ID-n(a) a-s-t* "brother"-*e-k: san-t-n-s* (or *san(n)-s-t(a)*) hath written a (our) . . . "Like a brother(s) thou makest us (*or* thou actest)"' (§§ 69, 76). The word  *a-s-t* occurs once elsewhere. A form *s-u-n* appears in 'The pledges (?) of So-and-so *s-u-n* (I have written)' (new Jerabis): *n-m-n s-u-n* 'a covenant (?) I have written' (new Jerabis). In the case of M xv, B are we to read ll. 2 3 *kat-s n-u kat-u-n: "Pan-am-mi n-m-n s-u-n* (§ 71)? In the next line *n-m-n s-u-n* ends the inscription following after a chief's name. A form *s-u* occurs M lii, 3.

I had at first thought that this root *s* meant 'to send', but I believe that the meaning 'write' is the correct one, on account of the following noun *s-e*, which would seem to come from it. The most striking instances appear to me to be in (1) M xxxiv, A (Ivriz): 'I am Tesup-mis . ., I am Ariarathides; we have given our alliance (hands); (l. 3) *s-e* "ally" *-na ṭ(a)-*?, the writing of our alliance giv[ing].' *S-e* here must mean some tangible proof of the alliance. (2) M xxxiii, 2: 'This tablet of making alliance hath brought gifts (?): *te* (?) *s-e-t(a): t-a: mi-t(a) ID; "Ṭ(a)-a-nas*, thy letter did speak concerning (?) Tyanian wood.' (On this quotation see translation at end.) The other instance which I know is:—(M i) *"Gu-n-nas man* (?)*-mu s-e: n-m-n-e* 'god' *Targu* (?)*-r-r-s* 'god'-*Sul* (?)*-e-s: mi-ni*, 'Gunnas (?), my . . . (?), hath accepted (?) the writing of the covenant of Targu-ras (and) Sul(?)-es.' (See translation at end.) Does *s-e-n-mi* in this text also belong here?

Are we to see the root in the verb after *kat-mi* (*ibid.*) and read *s-un*? (see § 70, *note*). In M vii, 2 *gu* (?)*;-e-u* 10 (?) *ID s-e n-m-n-an u-t* (?) . . *san* . . . the phrase is the same ('writing of our covenant') as in the previous example, and considering the limited possibilities of the verb *s* we shall probably not be far wrong in considering the meaning to be 'write' with a noun *s-e* (whatever number or case) 'a writing'. Is this endorsed by the Hittite cuneiform?

The meaning 'write' fits the following case:—(Y *r.* 11) *nu ma-a-an "UD-uš a-aš-šu ku-e ṭa-* . . . 'Unto our lord (§ 44) the Sun-god (i.e. king) they have written, "Gifts giving . . ."' (the next line ending 'for a gift a poor man brings to thee a sheep'), where I take *a-aš-šu* to be the augmented tense of *s* with *u* termination, as in § 71.

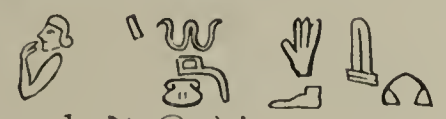
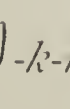
Other possible occurrences of the root are (G 16) *nam-ma-aš GIŠ-NI-it ša-ra-a ḫu-it-ti-ia-an-zi*: (Y *r.* 1) . . . *ta na iš AN . EN . ZU . NA ši-i-e-it* . . .: (Y *r.* 2) . . . *a-ar BÁBU.GAL-aš bi-niš ši-i-e-it ameli MES*: (Y *r.* 4) . . . *ša li-it aḫ-ḫa-ti ša-at u-ul ṭa-aḫ-ḫu-um.* Cf. *ša-a-ak-ki* (Y 20); [*š*]*a-ia-at* (A ii, 5).

extremely plausible, and when we find the 1st person singular and plural suffix (*-m* and *-an*) used in a similar way the suggestion becomes a certainty [1]:—

(3rd person singular)

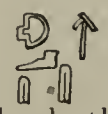
(*a*) M ii, 1  'Saith name N. (king) Y (Mutallu?) *a-*  *-s*:  *-k-n-s* (i.e. 'unto his (king) Y (Mutallu?)).'

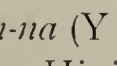
(*b*) M xxii 'Saith Tesup-k *a-s-k-nis* (i.e. 'unto his *a-s*' [2]).

(*c*) M lii, 3  'Saith name(king) X  *-k-ni-s*  (i.e. unto his friend (?) [3]).'

(*d*) M xxi, 1 'Saith (king) X [4] ....  (=  *-k-n-s* name*Ar-am-mi*) 'unto his  Arammi'.

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[1] A list of the suffixes will be found in § 58, with the reasons for their identification, and I have consequently not repeated them here. The examples for *k-n* with 1st pers. sing. and pl. are (1) TA 7:  i.e.: ID; *k-n-m* 'unto my table (?)'; (2) M x, 7  ID-*k-n-m* 'against mine enemy'; (3) M lii, 5  ID-*k-n-n-m* 'to my?'; (4) M ii, 4  *m-n-u-k-n-an a-ṭ(a)-t* 'for our memorial (?) he hath given.'

[2] I am much inclined to suggest that these two signs are  *a-ḫu*, and to recognize the word as one of those adopted by the Hittites from Assyria, translating it 'brother' on the analogy of *a-bi-e* (Y 32, 33), *a-bu-u-uš* (Y 37, 38), *a-bu-u-un-na* (Y 27, 31), &c., 'father'. There is the bare possibility of *aḫu* occurring once for 'brother' in the Hittite cuneiform (Al. *r.* 18, a letter) *ili-lu GIŠ UD* m*Za-ar-še-AN-MAR-TU a-ḫa-ti-wa ḫat-ra-at* ('Zarše-Martu, thine other brother?'): the Sumerian ideograph is, however, often used. (See § 89.) Tesup-k occurs elsewhere in the hieroglyphic texts.

[3] This is a name which occurs elsewhere: see § 49.

[4] This name is so important and occurs so frequently that it is better to discuss it here.  occurs on the long Jerabis inscription; on M ii, 1, 4, 6 (from Babylon): iii A, 1 (Aleppo): iii B, 3 (Hamath): xvi, A, 1 (Malatia): xxi, 1, 2 and lii, 1, 3 (Mar'ash). Ball, as far back as 1887 (*PSBA.*, ix, 1887, 447), recognized that this was a royal name of which the first part was Dadi. This king is one of four who have written the Malatia inscription, the first being probably Irḫulîna: on the long Jerabis inscription he is mentioned again with one of these kings, and he is the actual writer of the two long Mar'ash inscriptions to Mutallu. In the Malatia as well as the Mar'ash inscriptions he is undoubtedly suggesting an alliance with the reigning king of those lands, and from the ubiquity of his name it is clear his power was widely recognized.

The name is made up of the sign for Tesup without the god-sign; then an unknown sign which I have not met outside this name; and finally the sign *r*. Thus we get *Tesup*-?-*r*, or, since Tesup is Hadad, *Hadad*-?-*r*, which looks very much as though we had the Assyrian form of the

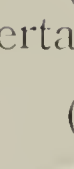
§ 34. From these examples it appears that suffixes can be added to *k-n*, the forms being *k-n-m*, *k-n-n-m*, *k-n-s*, *k-ni-s*, *k-nis*, *k-n-nis*,[1] *k-n-an*. We are also in possession of five terms of address:—

(1)  'friend' or 'ally', varying with (2).[2]

(2)  (proved to mean 'brother', § 38).

(3)  *a-s* (or perhaps =*a-ḫu* 'brother', § 33, *note* 2).

(4)  (called 'chief' by Sayce, and considered thus ('man' or 'hero') as certain by Menant, *loc. cit.*, 104: see § 73 (*b*)).

(5)  (considered as 'king' by Sayce: I should prefer 'lord', see translation of M xxi, M lii, at end).

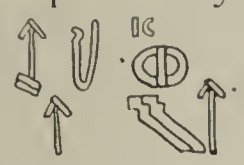
With this possible clue from the vertical hand as 'friend', we may turn to the horizontal hand with the thumb in the same place  in the frequent group (§ 14)  ('hand': +*a mi-nis*). It is marked, as has been pointed out, by 'word dividers' before and after, so that it is an ideogram; the omission in the *three* Hamath texts of  shows that this is probably not an accident, but that this syllable or word is unimportant. *Mi-nis* seems to be cognate with our word *mi-ni-* 'we'; so that it looks as though we should arrive at some such meaning for the first lines of the Hamath texts as 'Saith Irḫulîna to N, "Make alliance with us".' Knowing the necessity to the Hittites for such alliances at this period, it does not seem improbable. How then, shall we explain  and grammatically?

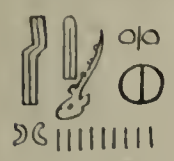
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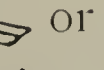
name of Benhadad II, Adad-id-ri. When we consider the frequence of his name, that he is mentioned on Irḫulîna's inscription at Hamath, that he writes to Mutallu of Gurgum and his adopted (?) son, and Arame, telling them of the alliances of several kings, among whom are Ḳaral, Katê and Nks, and probably Panammu and Irḫulîna, that he joins with Irḫulîna (?) and two other kings to ask alliance with the king of Malatia, and, as negative evidence, that he is not mentioned in the later published texts of Carchemish, in which occurs the name of Kirrî (who was not put on the throne of the Ḳauai until 834, § 27), we may well see Benhadad in this name, reading his name *Tesup* (*Hadad*)-*id* (or *iz ?*)-*r*.

[1] And also *k-s*, presumably by assimilation for *k-n-s* in M xxxii, 1 : xxxiii, 1. At first sight *k-n-nis* would lead one to suspect 1st pl. suffix rather than 3rd sing., especially when 'make alliance with us' frequently follows, and the difficult case 'brother'-*k-ni nin-as* 'unto the son of . . brother' (M xxi, 1) occurs. But we find *k-n-s* in the same line as *k-n-ni-s*, referring to the same subject (M xxi, 1), and in M xxxiii, 1 'make alliance with us' follows the simplest form *k-s*. Moreover, the doubled *n* occurs in the 1st pers. sing. *k-n-n-m* as well as *k-n-m*, and consequently the balance of evidence is in favour of our seeing the 3rd pers. in *k-n-nis*.

[2] See the note to § 67.

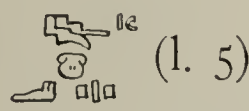
§ 35. The ⊆ is distinct from  clearly, for  is three times left out: ⊆ is also the equivalent of  (§ 15(3)). In M xi, 4  occurs, which must either be a god's name, or more probably the second sign is an adjective qualifying 'god', in which case it is probably 'great'. This group occurs in a new inscription from Jerabis thus  .

With this value 'great' the group which occurs twice in M x (4 and 6)  should mean 'chief of the Nine', whoever they may be: similarly we find  in M lii, 2, and (except for ↄc) thus also in a new Jerabis inscription.

This clue ( or ⊆ = 'great', 'chief') leads us to far-reaching conclusions. In M xi, 4, we find  .

'Affirmeth (sweareth) Ar-am chief of K-as-k', i.e. Arame, chief of Kaškai.[1]

Hence it should prove a clue to the existence of names of chiefs or kings in the hieroglyphs.

Take then the group  (l. 4) and  (l. 5) in the same inscription, which reads  *K-r-a* (+'chief'), the *a* in the first case being marked by a 'tang'. The inscription has already been shown to contain the names of Arame (above) and Panammi (l. 2, § 28); hence it belongs to the date of Shalmaneser, and, moreover, not too early in his reign. The name may be easily identified with Kirrî who was placed on the throne of the Ḳauai by Shalmaneser in place of Katê his brother (§ 27). It will be seen in § 49, that other chiefs' names are similarly indicated, and we can therefore consider this sign as proved to mean 'great'. There should therefore be no difficulty in finding its value from the Hittite cuneiform.

§ 36. The adverb *ḫu-u-wa-an*[2] in the first Arzawa letter is the equivalent of

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[1] The word *kask* undoubtedly ends at the *-k*, for the next word is well known. The Kaškai are a well-known tribe to the north-west of Assyria, and it is probable that this is a more definite description of one of the two kings called Arame by Shalmaneser, either of Bît-Agûsi or Urarṭa (see § 30). I have suggested 'affirm' or 'swear' for the ideograph of the head with protruding tongue (see end of note to § 1).

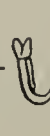
[2] It occurs A i, 6, 7, 10: Y [8], 15, 35, *r.* 33 (?): cf. *ḫu-wa-an-ti* Y 9; *ḫu-u-wa-an-da* A i, 26: *ḫu-iš* Y 44, cf. Y 6: *ḫu-u-i-ia-an-te-eš* Z i, 7: *ḫu-(u)-i-ba* D 14: E 12: *ḫu-u-wa-aš-ša* C vi, 9, &c. Particularly compare the name in Assyrian letters *mḪu-te-sup*, B.M., K 1037, 1067 (period *c.* 700 B.C.), 'Great is Tesup'.

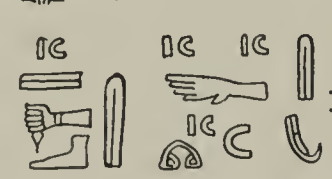
the Babylonian *damiš*,[1] in the greetings of the letter tablets: 'thy houses, thy wives, &c. *ḫu-u-wa-an DMK-in e-eš-tu* may they be very well'. The *wa-an* may very likely be the adverbial termination, equivalent to an accusative: *be-ri-wa-an* occurs (G 23, *in-nu-da-aš i-wa-ar be-ri-wa-an az-zi-ig-gan-zi*), which may also be an adverb. So that we are probably right in seeing in *ḫu-u-wa-an* the root *ḫ* or *ḫu* 'great': and if so  and  will probably indicate a similar sound.

§ 37. Now there is in Hittite cuneiform an interesting causative conjugation formed by adding *-ḫḫ-* to a root, e.g. *up-pa-aḫ-ḫi* A i, 18, *up-pa-(aḫ)-ḫu-un* A i, 15, 28 (from the well-known root *pa*): *ṭa-aḫ-ḫu-un* Y *r.* 4, [5] *ṭaḫ-ḫu-da* . . . Y *r.* 18 (from the root *ṭa* 'to give'): *te-eḫ-ḫu-un* Y *r.* 7 (from the root *te* 'to say'). Other forms are *šu-ub-bi-ia-aḫ-ḫi* D *r.* 5, *šu-ub-bi-ia-aḫ-ḫa-an-zi* D *r.* 7, *su-uḫ-ḫa-aḫ-ḫu-un* Y *r.* 6. Can we consider this or in  as akin to this?

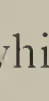
The following examples from the hieroglyphs give interesting results:—

(1) (A new Jerabis inscr.)  : 'ally': + *ḫ*(?)-*n* .

(2) (M ii, 2)  : *kar san-n-*  : 'ally': + *ḫ* (?)-*n*-  .

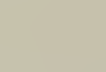
(3) (TA 4)  : . . . 'enemy'-*k-n-s*: 'ally': + *ḫ* (?)-*n-n*(*a*) (?).

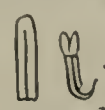
The last example (whether *n*(*a*) be correct or not, p. 125) would adduce the verbal termination for the first person plural for our consideration.

In cases (1) and (2) the subject is plural, in case (1) personal names being used. We should therefore suspect for both these groups verbs in the third person plural, for which ending *-n-*  the Hittite cuneiform offers an obvious parallel in its frequent verbal forms ending in *-anzi*. For instance, in A i, 22 *nu-ut-ta u-wa-an-zi u-ṭa-an-zi ku-ša-ta* DÚ-SAL-*ti*, 'Unto thee they . . ., they give the dowry (?) of thy daughter'. The forms *uwanzi uṭanzi* indicate a verbal ending in *-anzi*. Other forms which occur are *abawanzi* G 20, *aṭanzi* G 16,

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[1] Bu. 88, 10-13, 43 (Bezold-Budge, *Tell-el-Amarna Tablets*, no. 1, l. 6).

[2] My copy made in 1911 from the stone gives  , but I have no hesitation in suggesting that it should be  from a comparison with other texts.

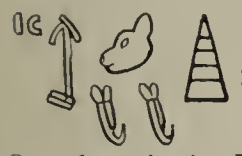
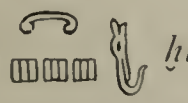
arnuanzi G 2, 8, 10, *arrubanzi* G 5, *ašnuanzi* G 20, *ašruanzi* G 13, *bennuwanzi* G 8, 9, *bennuanzi* G 1, *ṭanzi* D 6, *r.* 10, E 1, 9, *immiyanzi* G 15, *iššanzi* P 8. Thus we have clearly a [third person plural] ending in *-anzi*, coinciding with our hieroglyphic  , which we can now read *-n-zi* with certainty. In our present case the sense of 'ally' + *ḫ*(?)*-n-zi* is obviously 'They make alliance', and we can eliminate any doubt about it after an examination of two other phrases. In the first, from a new Jerabis inscription, the writer has given us the noun itself and the verb formed from the noun, thus showing how the causative might be made



where the base of the verb is in the second group, the verb coming first and marked with *m* (= *wa*, i.e. the cuneiform *uwa-*?) at the beginning and terminating with the causative *ḫ-n-zi*. In the second (a new Jerabis inscription) we find  *mi-n-zi*  *-ḫ-n-zi*.[1] is the character in M xxi which

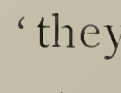
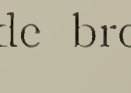
[1] In order not to stray too far from the subject of  = *zi*, I append cases of the use of *zi* placed after names. An excellent example of this in the hieroglyphs is given in § 3: *San-gar-s N-k-s* ^{n}*Gar-k-m-s*+'place'*-zi*. Now a postpositive *zi* in the case of nouns occurs in Hittite cuneiform, and Professor Sayce rightly hazarded that it meant 'in' in the instances in cuneiform in which he met it:—

C 1, 15 *Ma-a-an LUGAL-uš* ^{alu}*A-ri-in-na-az* ^{alu}*Ḫa-at-tu-ši-pa-iz-zi* ('in the city Ḫattu-šipa'): *ibid.*, *r.* 2 ^{alu}*Ia-ti-il* ^{alu}*Ḫa-iz-zi nu* ^{amel}*GIŠ.PA LUGAL-uš.* Similarly we may see it perhaps in Y 30 . . . *ak-ki-iš ḫar-aš-zi te-ri-ib-zi wa-a-tar na-a-i ḫal-di-in-na* . . .: and possibly L 2 *nam-ma-gan E*(? or *LAḪ*?)*-iz-zi*.

Other words end thus in *-zi* which may be nouns, but it is difficult to be definite about them, as both *-anzi* and *-izzi* appear to be verbal terminations. But ^{ilu}Tenusizzi (K 7) is fairly certain with a slightly different meaning than 'in' for the preposition. 'In' is definitely the sense in our hieroglyphic passage 'Sangar (and) Nks in Carchemish'. That this is no *quid pro quo* is obvious from the Jerabis text M xv, B. For other examples of this postpositive *-zi*, cf. in a new Jerabis inscription  : *Mi-zi-ir-zi*+'place', 'in Mizir', i.e. Muzri, to the north-west of Assyria:  (TA 4): ?-'place'*-zi* 'In the land of?' (unless it should mean 'in the speech of the land', which I think unlikely). The same use of *-zi* as in ^{ilu}Tenusizzi occurs in the hieroglyphs of M ix, 4, where *-zi* takes the place of *-s* in the parallel passage in l. 2 in the same inscription after all three personal names; and M x, 2  *ḫu IX-zi* 'against the chiefs of the Nine' (quoting their names). Cf. also  *Ḫu-ni-zi* 'with (or against) Aḫuni' (TA 1), Aḫuni being the chief of Bît-Adini, the neighbourhood of Tel Ahmar

replaces  in the introductory speech of M lii, and it must therefore have some such meaning as 'friend'. Whatever *minzi* may mean (§ 69), 'they have made friendship' or a similar sense would suit  *-ḫ-n-zi*. The same word is indicated in the same inscription  = *-ḫ-n-zi*.

§ 38. But a suggestion comes from a comparison of the groups containing Panammi's name (§ 28), where we find a group  repeated with and without  after it, even separated from it by a character. From the table of Hittite cuneiform pronouns (§ 57) *-š* means 'his', and in the quotation from M xi, 2 (§ 28) the last group,  *-zi*, looks like a plural verb such as we have here, of which we have already seen the singular in § 35. Hence the group after Panammi gives us the impression that it is another name, and the obvious rendering for our sign would be 'brother', i.e. 'Panammi (and) R his brother swear'. (For additional evidence, see § 73.) This meaning 'brother' fits M xxi, 1 (§ 29), 'Saith Ben-hadad unto his brother Y (Mutallu?) of Gurgum', and also our word  *-ḫ-n-zi*, which will give us the sense 'they have made brotherhood'.  *-ḫ-n-zi*, although spelt somewhat differently, will give the same sense: the character  is discussed in § 73 (*a*). It is almost unnecessary to call attention to the ancient practice of making brotherhood, which is discussed in § 87.

But we may also derive additional evidence for the value *ḫ* from  , which will be seen to be the same as the sign *ḫu* from the two forms  (M ix, 2, 5) and  (M xxx, B). In M x  'chief of the Nine' occurs (ll. 4, 6) after what may well in each case be a personal name, and  once (l. 2) after what may

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where this inscription was found; his name occurs twice in M lii (ll. 1 and 2),  : *ʷḪu-n(u)*, with a tang, indicating a personal name (see § 24). For the cases of  *u-zi* 'with them' see the list of pronouns, § 58.

Under this heading doubtless should come the cuneiform *-za* in such phrases as *ma-a-an-za LUGAL-uš* 'unto our lord king' (see § 44), *nam-ma-za* (A ii, 22), *am-mu-uk-ku-za* (W 19), &c. But as we find both *i-ia-an-zi* (Y 7; P 4), and *i-ia-an-za* (P 11), which may be only careless variants owing to the final vowel of the Hittite *zi* being slurred, it does not seem unlikely that this *-za* is merely a variant of *-zi*.

well be three personal names, and hence I should be inclined to regard *ḫu* (=) as a plural of *ḫ* and read here 'chiefs of the Nine'. Professor Sayce recognized in the sign of supremacy, translating as though it referred to a singular subject. If (*ḫu*) is the plural of *ḫ* it might also read *ḫi* or *ḫe* on the analogy of the ordinary plural (§ 63), but it is impossible to lay down many rules as yet for the grammar.

[Other passages in which occurs are: (*a*) M iii, B: iv, A: iv, B; the also occurs in these inscriptions. (*b*) M ix, 2, 5: xi, 3: xxx, B. (*c*) M xii, 1. (*d*) several times apparently in M xviii, especially B 5 . (*e*) M xxx, B. (*f*) M xxx, A: xxxv, 2: Rams. several times: see the 'edicule' at Boghaz Keui, M xxvii, D, E. (*g*) ? M xxxi, C, 4. (*h*) M xxxv, 3 . (*i*) TA 5 .]

§ 39. We have settled therefore the value of *ḫ* with its causal effect on verbs, its meaning 'great', and its probable connexion with the sign *ḫu*. We can now pursue the subject further, and seek the explanation of the final *a-ḫ-s* in both personal and place-names.

In § 29 the two quotations from M xxi and lii run thus, 'Saith Benhadad unto his brother Y (Mutallu ?)-*a-ḫ-as*: *Gu-gu-'m-a-ḫ-n-as*-"place",' and 'Saith Benhadad unto his ally Y (Mutallu ?)-*a*[*ḫ*]-*s*: *Gu-gu-'m-a-ḫ-n-s*-"place".' The following throw additional light on it:—

(*a*) M ii, 1, 6, *Tesup-id*(?)-*r-a-ḫ-s*: *ib.*, 4, *Tesup-id*(?)-*r-a-ḫ*. (Cf. also M iii, B, 3, § 15, (3)).

(*b*) TA 1 *Y* (*Mutallu* ?)-*a-ḫ-s* (cf. M ii, 1, which is the same except for in place of).

(*c*) The place-names in M iii, B, 2: iv, A, 2: B, 2.[1]

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[1] These may be transliterated ? -*r-an-a-ḫ-s*-'place', *Ar*(?)-*man*(?)-*a-ḫ-nas-e-a*-'place', *B-s-ḫ-r-a-ḫ-nas*-'place'. See § 56.

(*d*) The name of Hamath, *Am-ṭ(a)-a-ḫ-*'place'-'lord'-*t-a* (M [iii, B, 1]: iv, A, B, 1: M vi, and Restan 1).

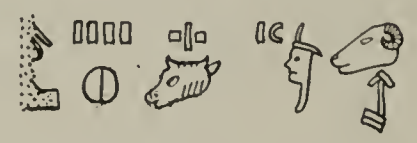
(*e*) M xxxiii, 1 (see § 12): *"A-r-ar-a-s*: *"Ṭ(a)-a-n(a)-a-ḫ-s-*'place'.

There are other instances, but these are enough. It is noticeable that in no case does the writer of an inscription apply the termination *a-ḫ-s* to himself; it is always to the person (or city) whereof he speaks, or even to his own city. It seems to be a compliment, and from its form connected with our root *ḫ* 'great', and Jensen's earlier suggestion 'king' was a reasonable one (see § 1, *note*). I do not think that the *a* represents a definite article, as I can find nothing to identify as a parallel, nor can I find any word in Hittite cuneiform with which to compare *a-ḫ-š*. I am inclined to see in it an intensive form (like the Greek *ἀτενής*, *ἀσπερχές*), and used in terms of address, meaning 'the very great'. It is at least noteworthy that it is applied to Hamath in the Hamath texts, which would compare with the 'Hamath the great' of Amos vi. 2. Moreover, in the inscription of Bar-Rekub from Sinjerli (Cooke, *North Semitic Inscriptions*, 172) we find the phrase פחי ואחי יאדי 'satraps and *aḫê* of Ia'di', פחי being compared (*ibid.*, p. 178) to the Assyrian *paḫati*, and אח 'apparently a title like איח, l. 3', and it does not seem improbable that we have here our Hittite word.

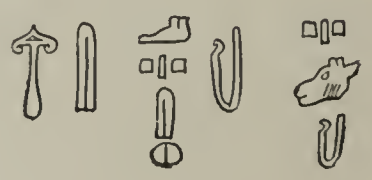
§ 40. Having come thus far, we can now turn to  in  , and the first point is to discover the value of the ox-head. There is a common word  of which we may cite the following instances:—

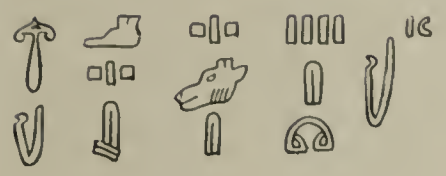
(*a*) M x, 1 

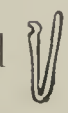
(*b*) *Ibid.*, 7 

(*c*) M xi, 2 

(*d*) M xxi, 5 

(*e*) New Jerabis 

(*f*) New Jerabis 

Now in the first case (*a*) if  be, on the analogy of  , a verb,  will probably not be one. In (*b*), (*c*), and (*d*)  is used directly before the nouns 'friend', Panammi, and Mutallu (?): hence, if it be not a verb, it may be a preposition. In (*e*) and (*f*) a most noticeable interchange of  and  suffixed takes place,  becomes  , and  becomes  . If  be a preposition, then  and  are (pronominal) suffixes.

§ 41. We have therefore to follow up the problem:—Can we compare this with any preposition beginning with *a* existing in Hittite cuneiform? Now the word *aba* is obviously a preposition in Al. *r.* 8 ff. *a-ba-u GIŠ-ŠAR ša Dur-rabû-bâb-me | GIŠ-ŠAR ga-na-ri-iz | GIŠ-ŠAR ša Liš-me-amil-um a-ba ḫarran-me | a-ba-u GIŠ-ŠAR ša Dur-ki-me*, 'With (or from) them the garden of D., the garden ..., the garden of Lišme-amilum with (or from) the paths, with (or from) them the garden of Durkime.' It occurs also possibly in Scheil i, 3, . . . *ta-an-ḫa-ta ši*(?)*-ut-ta a-ba ḫal*(?)*-ši*(?) . . .

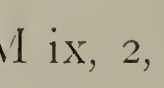
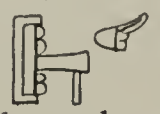
It is therefore quite reasonable to consider that the hieroglyphic preposition  *a*-? is the equivalent of the cuneiform preposition *a-ba*, i.e. that  = *b*(*a*).[1]

Hence we can now read our group in § 40 as 'ally' + *ḫ b*(*a*)-*a mi-ni-s*[2] (or in two cases, § 14 (*g*), 'ally' + *ḫ b*(*a*)-*a mi-s*). We have no difficulty now in seeing

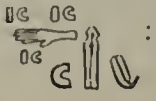
[1] The names which occur containing this character, Bauli the son of Mutallu,—banin, a chief of the 'Nine' (M lii, 1, 2, &c.), Bark, a chief of the 'Nine' (§ 73), give no further proof one way or the other, as I cannot identify them with known kings, although Ba'ali is of course possible as a name, and Ilu-ibni was king of Suḫi. Indeed the opening speech of M ii, 'Saith Ṭ(a)-?-ar-s unto his lord (?) Mutallu, "Thy father (?) (and) Benhadad the great have given thee a memorial-stela (?) for the commemoration (?) (glory (?)) of Tesup (Hadad)"', holds out more prospect of confirmation of the value *b*(*a*), for we have seen that the Assyrian word *abu* 'father' had been taken over into the language of the Hittite cuneiform, and here we have *a-b*(*a*)*-u-t*(*a*). (See § 89.) For *a-b*(*a*)*-ir*, see notes to trans. to M ix at end, which shows that *b* and *p* interchange in the hieroglyphs like *k* and *g*. For additional examples of the prep. *a-b*(*a*) see M i: ix, 2: x, 2, 5, 7, 8: xi, 2, &c.

[2] In three similar texts (Hamath) the *b*(*a*)*-a* is omitted altogether.

that this 'ally' + *ḫ* is the causative conjugation 'make alliance'; the *minis*, as was suggested in § 34, seems to be an oblique case of *mini* 'we', which is strengthened by the occurrence of *mis* twice in its place (§ 14, *g*), which points to the same oblique case of *mi* 'I'. But the *b(a)-a* is a difficulty: the easiest way to translate it would be 'Make alliance with us', reading *a-ba*, our pronoun mentioned above. But it is not written *a-ba*, and is never written so in the nineteen cases which I have collected, and therefore we must either consider it as a fanciful method of writing *a-ba*, on the analogy of the spelling of Mutallu and Targu(?) (§ 91), and the higgledy-piggledy arrangement of the very phrase in which this word occurs (see § 14), or that this *b(a)-a* (or *p(a)-a*) is a preposition distinct from anything which we have found. Our knowledge is not yet secure enough to accept the former view, and at the same time I cannot find any equivalent for *bâ* in Hittite cuneiform. Nevertheless, the sense of the group is clear, and for convenience sake I shall adhere to what I think is the most probable rendering, 'Make alliance with us'.[1]

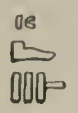
§ 42. Notably at first sight M x from Carchemish, a basalt slab inscribed with eight lines of hieroglyphs and sculptured with a king in high relief, deals with an alliance. The most striking sign in the whole of the system of hieroglyphs is written here twice, and nowhere else, that of  , which (as is discussed in § 87) must refer to the making of blood-brotherhood or an alliance. It is preceded in l. 1 by the name of the god Targu (if our reading in § 11 is right), which occurs again in l. 3 followed by  . But in M ix, 2, 4 : xi, 1, also from Carchemish, there is a proper name *Targu-r-s(zi*, &c.) in close connexion with the name  [who is also the writer of our text M x], and it does not seem unlikely that the Targu of M x may be an abbreviation for the Targu-ras of M ix.[2] For, as we have seen, the name is followed by the hieroglyph of the open hand (= 'ally'), and if  is *mu*, as I suggested in § 31 in the name Mutallu, we should get 'Targu(-ras), my ally'.[3] The full translation at the end will make this clearer.

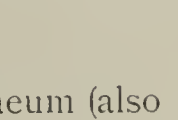
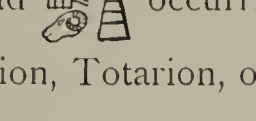
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[1] The *a-b(a)-t(a)* which occurs on TA 1 immediately following the phrase 'make alliance with us' must belong to the succeeding sentence. In TA 4 it is interesting to see the phrase  : 'ally' : *+ḫ-n-(n(a))* : 'we have made alliance' for the ultimate agreement (§ 37 (3)).

[2] The seal M xxxix, 10 is a case in point, as it contains only the name  *Targu* which should be a personal name, since it is on a seal.

[3] *-mu* is a form of *-mi*, the 1st pers. sing. pron. suff., §§ 57, 58.

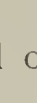
§ 43. We can thus return to the proof of  = *mu*, and we can find additional evidence in the name  *?-ar-mu* (M xix, 4), which may be the same as that in a new Jerabis inscription  which ends with *-mi*. We can see it again as a first personal suffix in TA 3 in  *:g(k)-mu* 'I will go' (see translation at end).[1]

§ 44. With the view that  = *mu* we can proceed to find the value of  , which is apparently used only as an ideogram, and Jensen was probably right in suggesting the meaning 'lord' as its equivalent. We find it written  after a chief's name and his country, e.g. 'lord of lands'[2] (M ix, 1 : x, 1 : xviii, B, 3): M xvi gives  'the lord of Tabal' (see translation at end). Compare also the seals M xl, 12, 14.

Now we find a word *ma* in Hittite cuneiform which has all the appearance of meaning 'lord'. It occurs at the beginning of Z 1, a cuneiform letter from Boghaz Keui: *ma-a-an-za LUGAL-uš i-na* ^{alu}*A-ri-in-na*, 'Unto our lord the king in the city Arinna',[3] and the third paragraph begins *ma-a-an LUGAL-uš*, 'our lord the king'. *Ma-a-an* occurs Y 15, *r.* 8, 11, 35, 40: C i, 15: N 6: *ma-an* B 5. *Ma-aš* is apparently the nominative case N 2 (*nu-uš ma-aš šu-ḳu-eš-ni*; and cf. *nu ma-aš-ta* Y 14). This nominative assumes a curious form in Y *r.* 42, on account of the adopted Assyrian possessive *-ia* 'my': *a-na AN.UD maš-ši-ia i-na BANŠUR AN.UD ṭa-a-i* 'Unto the Sun-god, my lord, on the table of the Sun-god, give'. It also occurs thus on E 5, [11], 14[4]: K 4: and once as *ma-ši-ia*, G 11. The dative case without the suffix 'our' is found twice in W 19, *maḫ-an ma-za a-bu-ia* ^{m}*Mur-ši-li-iš il-li-iš ki-ša-at aḫi-ia ma-za-gan* ^{m}*Muttalli-iš*, &c.

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[1] How are we to read  occurring three times on a text M xxxv from near Tyriaeum (also perhaps Tyrasion, Tyganion, Totarion, or Tetradion)? Are we to see *Ter-ru-um* in it?

[2] I cannot help thinking that the plural is correct here.  , it is true, is used as a determinative for a country, but it may be in its form 'double  ', and consequently may well have the value of a *pluralis excellentiae*, as  'chiefest god' seems to have, for  is used for the plural of  *ḫ* 'great' (§ 38). The phrase  on the 'Tarkondemos' Boss is translated *šar mâti ali*, literally, 'king of country-city'.

[3] On Arinna = the Egyptian Arnna of the Rameses-Khetasar treaty, see Sayce *PSBA.*, xxi, 1899, 196: xxiii, 1901, 98.

[4] Professor Sayce was the first to see the meaning 'my lord' for *maš-ši-ia* in this passage.

Hence we may consider *ma* in cuneiform = 'lord'. Now we have seen sufficient proof that 𒈬 = *mu*, and hence it is not unreasonable to explain the simple three strokes without the tang (which has been proved to mean 'lord') as having the value *ma*, which will at once give us an equation similar to the cuneiform *ma* 'lord'. [From the character we might therefore infer that the Hittite word for 'three' was *ma*.]

[We might go a step further and see in the cuneiform *maḫ-an* in W 19 (by resolution into *ma+ḫ+an*) 'our (?) great lord' (*nu-mu-kan maḫ-an nišî-an-na-za* 'unto me our (?) great lord for our people'?); more readily (*ibidem*) *maḫ-an ma-za a-bu-ia* 'our great lord to the lord (?), my father': perhaps *ma-aḫ-ḫa-an* G 4, 12, 19: *ma-aḫ-ḫi-ta-an* ('thy great lord'), Y *r.* 10. At any rate, we find in the hieroglyphs *ma-ḫ-n(a)-nis* 'son (?) of our great lord' (M ix, 2): *te*(?) *san*(*n*) *ma-ḫ-n"A-r-ar-a-ni-t* (?) 'Saith Araranins our (?) great lord' (M xxxii, 1): ?-*B-r-k-k-zi*(or *n*(*a*)(?)): *ma-ḫ-n-s* '... Bark, our great lord' (TA 3: thus my copy). (See translations at end for these quotations.)[1]]

Having now come halfway to proving that 𒀀 𒈬 (*tal;-mu*) = *mu-tal;*, the long Jerabis inscription comes to our help here for the second syllable. Here a name is written 𒀀𒀀[2] (the second sign being our supposed *tal* with a 'tang'), and since we know the last character *li*, and are suggesting *tal* for the second, it is plausible that we should read the whole name Mut-tal-li, which is quite in

[1] On the basis that the hieroglyphic *ma-ḫ-n-s*, &c., meaning 'our great lord' is found in cuneiform as *maḫ-an*, &c., it might be profitable to see if the hieroglyphic groups 'god'-*ḫ-m-u* 'by my great god' (M xxi, 4), *mi-t-m*: 'god'-*ḫ-m* '(as) my great god (is) with me' (or similar oath, new Jerabis inscription, § 81) can be identified in cuneiform also, so that we might learn the Hittite word for 'god'.

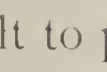
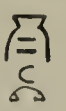
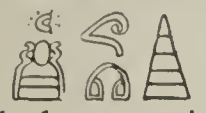
A word which might possibly solve this difficulty occurs as *araḫzauṭa* in A ii, 19; *arḫa*, G 4, 12, 14, 16, 19 (cf. Liv. ii, 15): S i, 2: *ar-ḫa-a-an*, S i, *r.* 9.

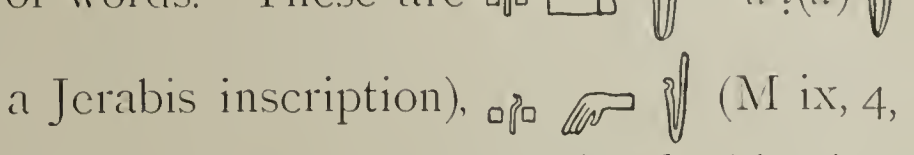
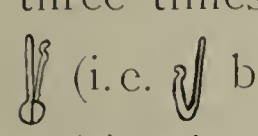
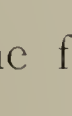
A-ra-aḫ-za-au-ṭa can be divided up into a noun *araḫ* with *za+auṭa* a compound preposition (cf. §§ 37 *note*, 79) similar to *ma-za-gau* (W 19); *ara+ḫ* can then be compared to *arḫa* quoted above. Examples of its occurrence are:—

(A ii, 19) *mu-ut-ta ḳat-zmn-nš a-ra-aḫ-za-au-ṭa* [*aš-š*]*n-u-li ḫar-kan-*[*d*]*u* 'to thee his *ḳat* for (?) the great god (?) . . . .' (G 4, 12, 19) *ma-aḫ-ḫa-an ma-aš ar-ḫa la-a-an-zi.* (G 14) *I ub-na u-zu-uḫ-ri-in-UD-DU-a ar-ḫa ia-ṭa-an-zi* ('I *nbna* of . . . to the great god (?) they have given'). (G 16) *na-aš ar-ḫa a-ṭa-an-zi* 'this to the great god (?) they have given'. The simple word *a-ra-an* (?) occurs C iii, 6.

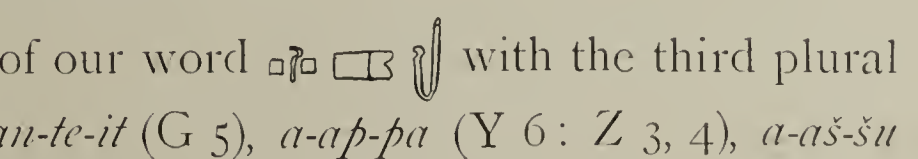
That *ara* = 'god' is therefore only a suggestion: at the same time it is interesting to see the number of personal and place-names beginning with this: Ariamnes and Ariarathes (both names of kings of Cappadocia), Arame (of Bît-Agûsi), Aranda, Ardys, Arnuanta, Arinna (place-name = Boghaz Keui?), Arantu (Orontes), Arpad, Araziki, Argana, Arzašku. It is hardly necessary to compare the Assyrian and Babylonian Bâb-ili, Irba-il, Dur-Aššur, Dur-ili, Dur-Šamaš, Kar-Aššur, &c., for place-names compounded either simply with 'god' or a god's name. But, on the other hand, *ar* is a possible value for the 'house'-sign (§ 18, *note* 2), and *ar-ḫa* may mean simply 'palace'.

[2] In M xxiii A, 2 there is a group which might conceivably be read the same way.

keeping with the date of the inscription. By referring finally to § 31, we are, I think, justified in accepting *Mu-tal-* as certain. (On the question of the arrangement of the signs in *Mu-tal*, see § 91.) [The sign  is difficult to prove otherwise than in the word Mutallu. There is a chief's name  *Tal-s* in M ix, 2 (cf. 5), xi, 3, and another  *Tal-ḫ-s* in M xxxii, 1 and xxxiii, 1, but I cannot identify either of them. It is also probable that  (M iv, A, 3, from Hamath) might be read *Tal-Ḫ Am-s-*'place', for which latter city I would suggest Emesa (Homs), i.e. 'Tal(as) the chief, of Homs'.]

§ 45. Our next problem is to solve the common sign  . occurs constantly at the end of a certain class of words. These are  = *a-ṭ(a)-* (see § 70), = *a-s-* (twice in a Jerabis inscription), (M ix, 4, three times: TA 4; for others, see § 70); and particularly in the double sign  (i.e. backwards and ⊕).[1] Now we have already seen (§ 10) that *a-ṭ(a)-ir* is a verb from the root *ṭa*, and hence the form *a-ṭ(a)-* may reasonably be supposed to be part of the same conjugation. The other words are clearly of the same form, *a-*✓*-*  , the only difference being the middle character.

Now *a* prefixed to the root occurs also in Hittite cuneiform[2]:—

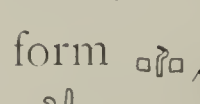
a-ṭa-an-zi (G 16, the conjugation of our word  with the third plural termination (§ 37) in place of ), *a-an-te-it* (G 5), *a-ap-pa* (Y 6 : Z 3, 4), *a-aš-šu* (Y *r.* 11), *a-aš-šu-uḫ-ta* (W 19), *a-i-iš-mi-it* (Y *r.* 6), *a-ki-ir* (Y 33, 35), *ar-nu-an-zi* (G 2, 8, 10), *ar-ru-ba-an-zi* (G 5), *az-zi-ik-kan-zi* (G 7, 23), *az-zi-ik-ki-ta-ni* (Y 18).

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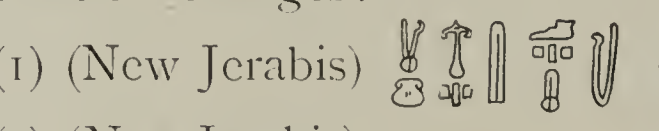
[1] Note, however, that in the proper name  (*Kat-t-e*) it is written thus, to make the distinction (§ 60).

[2] But besides this initial *a* we find *i* and *e*: e. g. *i-ia-an-zi* (Y 7, P 4), *ia-ṭa-an-zi* (G 14), *i-ga-it* (A i, 27), *im-mi-ia-an-zi* (G 15), *e-ša-at* (W 19). This seems to indicate that the sound of was not given a definite equivalent in cuneiform, but that the scribe wrote down the sound as he thought he heard it This is supported by the cuneiform value *me-e* for  *mi-*'.

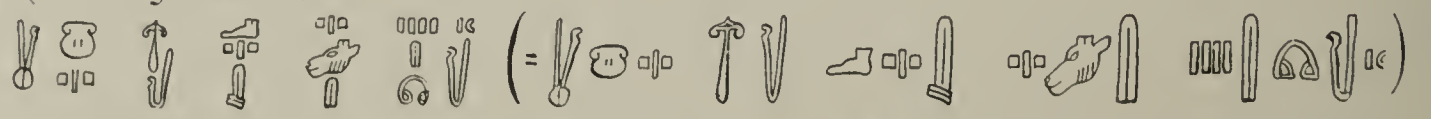
Since *-anzi* marks verbs (§ 37), we may see in this  *a* an augment, like the Indogermanic **e* = Skr. *a-*, Armen. *e-*, Gr. *ἐ-*,[1] an indication of past time.

Now, since the form  indicates a verb in a past tense, we shall find a suggestion for  in the common termination of the Hittite cuneiform verbs (besides the augmented forms *a-am-te-it*, *i-ga-it*, &c.):—*bi-i-e-it* (Y 21, 25: S i, *r.* [1], 6), *bi-e-i*[*t*] (C iii, 11), *ki-e-it* (M 2), *ku-it* (Y 16, *r.*19: C ix, 4: L 4, 5: W 19), *pa-*(*a*)*-it* (Y 16, *r.* 10: S i, 10: F 2), *te-it* (Y 4, 16: [A ii, 1]). This is a third person; *te-it* is supposed to be a third person 'he says'.[2] Let us suppose then that  = *t*, and apply it to the following cases.

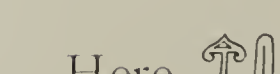
§ 46. In the hieroglyphs there occur three phrases containing only slight grammatical changes:—

(1) (New Jerabis) 

(2) (New Jerabis)



(3) (New Jerabis) 

Here  (*a-b*(*a*)*-t*(?)) of (1) are replaced by (*a-b*(*a*)*-t*(?)) and (*a-b*(*a*)*-n*) of (2). As is shown in § 57, the nominal suffixes from the Hittite cuneiform are:

Sing.	(1) *-mi*, *-mu*	Plural	(1) *-n*, *-na*, *-ni*
	(2) *-ta*, *-ti*, *-tu*		(2) *-ut*(?)
	(3) *-š*, *-ši*, *-ša*, *-šu*		(3) *-u*

The 1st and 3rd singular we may obviously eliminate, and as we have here  *n* to represent 1st pl., we can reduce the possibilities of to three, *-ta*(*-ti*,*-tu*), *ut*(?), and *-u*: so that our theory for *t* is growing probable.

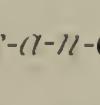
Turn next to the first word in the three quotations. In this word the sign is always written backwards when used with as a 'conflate' sign; is a common word either by itself or with the addition *r-a*. If *t* be correct here, what is ?

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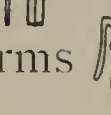
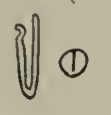
[1] Brugmann, *Comp. Grammar of the Indo-G. Languages* (tr. Conway and Rouse), § 477.

[2] See Sayce, Y p. 64.

A comparison of the words

(*a*)  *k-a-n-*⌀ (see above, Nos. 1, 3) with  : *k-a-n* (M xxxii, 5),

(*b*)  *n-m-n-*⌀ (M xi, 3) and even  *n-m-ni-*⌀ (M xxiii, A, 2) with  *n-m-n* (new Jerabis),

as well as the forms  (M lii, 3),  (a new Jerabis inscription), a proper name (§ 49), shows that ⌀ is probably a vowel,[1] and, in common nouns, that probably representing a plural. If so, it is *i* or *e* (see § 63 for the plurals of Hittite cuneiform).

§ 47. Now there is a small word ⌀ in the hieroglyphs which is fairly common, which our hypothesis should make *e-a* or *i-a* equivalent to a word *i-a* in the Hittite cuneiform. First, let us take the latter:—

(A) Prepositive:

(1) (W 19): *nu-mu* aḫi-ia a-na *Rab Me Še ti ut-ti ti-it-ta-nu-ut* mât ali êlî-ti *ia-mu ma(ku)-ni-ia-aḫ-ḫa-an-ni.*

(2) (*Ibid.*) *ḫar-ta* aḫi-ia *ia-mu.*

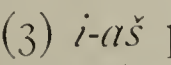
(3) (Y 28) .... *wa-ra-aš gi-im-ra-aš i-aš nu a-bu-u-un-na.*

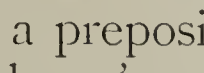
(B) Postposition:

(4) (Y *r.* 45) *I LU a-na AN. UD* ^{ilu}*Te-li-bi-nu-ia ŠUM ša-an* . . .

(5) (D 9) *AN. MEŠ MULU. MEŠ-ia* . . . *-ši-iš-ša-an* (?).

(1) and (2) *ia-mu*, (3) *i-aš* point to a preposition *ia* with personal suffixes: we may translate (2) '. . . my brother with me', and (3) '. . . all of it with him unto our father'.[2] In the postpositive cases (4) can be translated 'One sheep unto the Sun-god with the god Telibinu (?) . . . hath (or have) given', and (5), if the text be correct, 'the gods with men'. Now in the hieroglyphs ⌀ occurs written as though it might be pre- or post-positive also, but owing to the Hittites' method of writing their characters in a manner pleasing to the eye it is not always clear which method is intended:—

(6) (New Jerabis)  = : IX *mi-e-a* (or *e-a-mi*).

(7) (New Jerabis) 'So-and-so'  = *n-m-n-e mi-e-a* (or *e-a-mi*): 'engrave'.

(8) (New Jerabis) = *t(a)-e-a* (or *e-a-t(a)*): *Mi-zi-ir-zi-* 'place' *t-e.*

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[1] Menant arrived at the conclusion that it was a vowel ('*Eléments du Syllabaire hittéen*', *Acad. des Inscr.*, xxxiv, 2nd part, 1892, p. 100). He considered that it = *a*.

[2] The preponderance of Assyrian words in this line makes it comparatively easy to translate.

(9) TA 3  = *s-r-a ID: -I-k-n-m*[1]*: g(k)-mu t(a)-e-a* (or *e-a-t(a)*).

(10) M iii, B, 3  = *kat*[2]*-mi n-m-n-an*[3] 'engrave' *e-a Tesup-id*(?)*-r-a-ḫ-m-*'place' (see § 68 (5)). Cf. also M iv, A, 3.

(11) The first quotation in § 28 : *Pan-am-mi san e-a* (name) 'brother'-*s*.

Now if  = *e-a* = cuneiform *ia* = 'with', it should fit these instances.

In (6) and (7) *mi-e-a* or *e-a-mi* are obviously compounded with the first person singular suffix; hence we get 'The Nine with me' for (6). In (8) and (9) *t(a)-e-a* or *e-a-t(a)* is similarly compounded with the second person singular 'with thee'. (10) is *e-a Tesup-id*(?)*-r* 'with Benhadad the great' (or possibly 'with the city of Benhadad the great'). In (11) for 'Panammi *san* with R his brother', see §§ 38, 52, and 73. We may thus consider that we have found the hieroglyphic equivalent of the cuneiform *ia* 'with', and that = *e* or *i*.

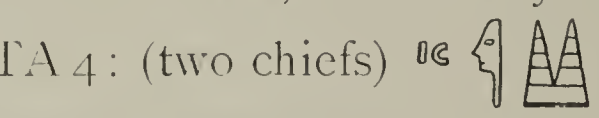
§ 48.  *t-e* can now be explained. It is a word which occurs frequently in the hieroglyphs by itself and with the termination  , which by our values we must read *r-a*. Similarly we find  'engrave' either singly or with the same termination *r-a*: hence we may consider that (1) *t-e* is similarly a verb, (2)  *r-a* is a verbal termination. Since a verbal termination *-ra-a* occurs in Hittite cuneiform, we may finally regard the evidence for = *r* as conclusive. Examples of this use of *-ra-a* in cuneiform are :—

(1) *Pa-ra-a* in Y *r.* 38: *LAḪ AN-lim ḫa-at-ki na-aš-ta pa-ra-a.* Z 3, 5: . . . *aš-ša ku* (or *ma*)*-aš pa-ra-a.* (But see p. 103 on the possibility of *pa* = *ḫat*.)

(2) *ša-ra-a* in G 16. *nam-ma-aš GIŠ-NI-it ša-ra-a ḫu-it-ti-ia-an-zi.*

(3) *E-ra-a* in C ii, 3 . . . *ik-ra-a-e e-ra-a ṭa-a-e* &c., and l. 5 . . *e-ra-a ti-im-mar-ta* &c. Uncertain.

Pa in (1) is a well-known verb (see notes to translation of M ix at end). *ša* is less well known in cuneiform,[4] but occurs in the hieroglyphs (see § 32, *note*) in the root *s*. Indeed, we actually find *s* + *r-a* in hieroglyphs.

(4) TA 4: (two chiefs)  : ?-'place'-*zi s-r-a*.

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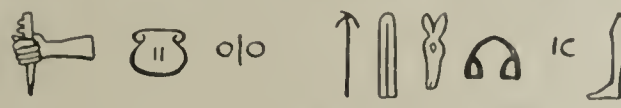
[1] It is possible that this is a sculptor's error for  *n* ('our' and not 'my'), but my copy from the stone and Hogarth's from the cast both read *m*.

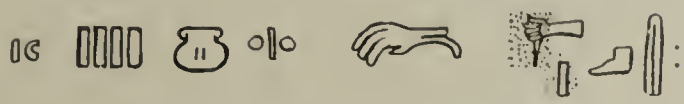
[2] Proved in § 60.

[3] Proved in § 68, *note*.

[3] *Ši-i-e-it* Y *r.* 1, 2 is probably an instance: perhaps *e-ša-at* W 19.

An examination of the hieroglyphs will show that this termination *r-a* indicates a third pers. pl. of a verb: beside the exx. in § 46 and (4) above, we find

(5) M ii, 4 'our allies'  : *ID-r-a m-n-u-s* : *ID-n* 'have graven the leg (?) of the monument (?)'. Compare also

(6) M lii, 3:  : *sam-r-a* 'ally', 'enemy' *-I(?)-k-n* 'they make alliance against a common (?) foe'.

Our problem is therefore to investigate the meaning of a verb *t-e*.

In the Hittite cuneiform we find a verb *te*, for which Professor Sayce has suggested the meaning 'say':—

Y 4. *nu wa-ra-at-mu te-it* ('unto my *warat*[1] he speaketh').

Y 16. *a-pa-a-ša pa-it AN. IM-ni te-it ki-i*,[2] &c.

A ii, 1, a letter beginning *[m]A-ta-mu ki-[i t]e-it [m]Lab-ba-[i]a* (or *ana a-ta-mu* 'unto my father', &c.).

Y 17. *at-ti-iš-ši an-ni-iš-ši te-iz-zi* . . . ('her father her mother say'?).

Y 23. . . . *IM-ša te-iz-zi nu wa-ra-an ku-it.*

Y 34. . . . *ḫa-aḫ-ḫi-ma-aš AN. IM-ni te-iz-zi.*

Y *r.* 10. *mu-ga-mi AN. UD-ša te-iz-zi.*

B 3. . . . [*š*]*a te-iz-zi hal-me-da-aš.*

te-eḫ-ḫu-un occurs Y *r.* 7 (i.e. √*te* with causative *-ḫḫ-*).

The sense of 'speak' or 'say' fits admirably with the hieroglyphs; the three cases quoted in § 46 all begin with the word *t-e-r-a* 'they say'. Hence, we can say definitely that  = *t-e* = 'to say': and that just as an ideogram is used by itself for the singular (§ 47 (7) and (10)), and with *r-a* added for the plural (§ 48 (5)), so is a verb spelt out like *t-e* used alone for the singular (§ 47 (8)),and with *-r-a* added for the plural (§ 46) like *s-r-a* (§ 48 (4)) and *san-r-a* (§ 48 (6)). *R-a* apparently marks an imperfect tense.

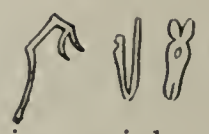
§ 49. We can now turn back to examine the chiefs' names which are marked by a final *ḫ* (§ 35).

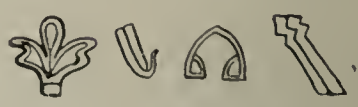
One of these is *Nis-t-Ḫ*, who occurs thus in a new Jerabis inscription; without the *Ḫ* in M xxi, 2, and a new text (here 'tanged'): M lii, 3 (§ 50 (3)) 'Saith

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[1] Torp, *loc. cit.*, compares the *warat-mu* of A 1, 18 with *bhrātō* 'brother'.

[2] The *ki-i* here looks rather like the Assyrian *ki-i*, a conjunction, 'that'.

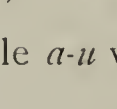
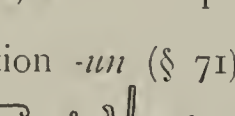
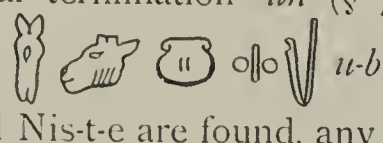
Benhadad unto his friend *Nis-t-e*': and TA 4 as  , and probably in M v, 4 as  [1]. I cannot identify him with any king's name that I know, but his name is interesting, because it shows that a chief's name may be used with or without a final *h* arbitrarily.

Another name in the long inscription from Jerabis is  , thus ending in *-n(a)*[2]*-s-H*. The sign  has such an important bearing on the reading of a king's name that I was very chary of accepting the value *nin* to which all indications pointed, until I found a variant that seemed to me to leave no doubt about it. The following is my evidence for this character *nin*.

§ 50. First it occurs in passages where it seems to demand the meaning 'son' (suggested by Prof. Sayce (see p. 129)). Cp. the Mar'ash texts (§ 29):—

(1) (M xxi, 1, first paragraph) 'Saith Benhadad unto his brother Mutallu the great, of Gurgum the great; unto his lord[3] Arammi *nin*[4]*(n)-s*: *"-?-ni-li-(n)nis* (i.e. Arammi, the son of -nili)'.

---

[1]  (or its abbreviation) = *u*, from the following:—In Hittite cuneiform *-u* is the termination of the 3rd pers. pl. suffix (see § 57), *kat-tu*, *a-ba-u*, *nu-u-ZUN*, *u-ul*: this is found in hieroglyphs in *kat-u*, *a-b(a)-u*, *t-a-u*, *mi-r-a-u*, *u-zi*: the particle *a-u* which appears to be the  of the hieroglyphs (§ 83): the verbal termination *-un* (§ 71) appears in  , *s-u-n*: the verbal *u-* (in *u-ta-an-zi*, &c.) is found in  *u-b(a)-r-a-t(a)* (see translation of M ix at end). It would be clear that since Nis-t and Nis-t-e are found, any addition would probably only be the mark of a case-ending, although this need not be so necessarily.

That  is an abbreviation for  is obvious from *a-b(a)-*  (M xxi, 4, &c.), *a-*  (xxi, 4), and  (§ 61).

[2] My hand-copy from the stone has  *zi*, which seems obviously wrong: the inscription was very often difficult to copy with certainty.

[3] I think Professor Sayce is practically right in translating  'king' from the 'Boss of Tarkondemos': I have preferred the word 'lord', as it appears to me to be a term of respectful address to an equal. The value is apparent from a comparison of two groups: (1) the group  (e.g. Rams.; Boghaz Keui, M xxviii: Kolitolu-Yaila, M xxxv, 2: Fraktin, M xxx, A). This group seems to be used chiefly if not entirely in the Western States. (2)  used, as an epithet of the king at Fraktin, M xxx, B, and of the king on the Carchemish inscriptions M ix, M xi, and one new one.

(2) (M lii, 1, first paragraph) 'Saith Benhadad unto his ally Mutallu the great, of Gurgum the great; unto his lord Bauli *(n)nin-as : Mu-tal;-a-ḫ-nis* (i.e. Bauli, son of Mutallu, the great): "make alliance with us".'

(3) (M lii, 3, second paragraph) 'Saith Benhadad unto his ally *Nis-t-e "B(a)-a-u-li-nin* (i.e. Niste, the son of Bauli): "make alliance with us".'

(4) (M xxi, 1, second paragraph) '(Saith) Benhadad "brother"*-k-ni nin-as . . . -li-s*: "ally": -?-?[5]*-am-nin Nis-t B(a)-a-u-li-nin-as*, &c.' (i.e. 'unto the son of his brother [Mutal]li(?), the son of the ally of my (?) ancestors, Nist, the son of Bauli').

(5) (M xxi, 2, third paragraph) '(Saith) Benhadad "ally"*-k-ni nin-as : Mu-tal;-a-ḫ-nis* : "ally" : *-n(a)-a-s "B(a)-a-mi*[6] *nin Li* (or, . . *li*)-*Tesup*[7] : "ally" : *-n(a)-a nis-n(a)-a "Ar-am-mi nin(n)-nis "-?-li-s'* (i.e. 'unto the son of his ally Mutallu the great, our ally, Bâmi, the son of Li (*or*, . . li)-Tesup, our ally, our *nis*; Arammi, the son of . . li').

(6) TA 1  . . . 'place' : 'lord'*-k-n "E-r-s-k-ar nin(n)-s* : 'ally' : ? . . ('. . . . unto the lord of the land . . . Erskar, son of the ally of [our] ancestors . .') (or read as on p. 124).

The meaning of this last phrase will become clear from Malatia, M xvi, 'We Irḫulîni (?), Benhadad, So-and-so, and So-and-so.

 &c.[10]

tc (?)-ḫi[11]*-u T(a)-bal*[10]-"place"*-ma ni-ni* : "ally" : ?-?-*ni Lal (?)-li (?)* send[11] to the

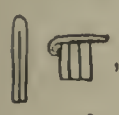
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Professor Sayce's suggestion that  is the royal headdress seems a good one. At any rate, it is not improbable that  is closely allied to  in meaning: and since we have seen that  ='chiefs', the plural of  (§ 38), we should have the value for these groups 'lord of chiefs' or similar meaning, which is exactly what we should expect, the equivalent of the 'king of kings' of the Oriental. It is clear that  (§ 44) 'lord of lands' is not far different from  on the 'Boss of Tarkondemos'.

[4] To avoid a repetition of the character in type, I am using my value *nin*, always with the reservation that its proof rests on what follows in this section.

[5] Sayce reads  from the stone in Constantinople, but the B.M. cast suggests a parallel to M xvi.

[6] Emended from a comparison of M lii, 4, with the B. M. cast.

[7] Read thus for M xxi *nas*. [The value  =*nas* is shown on M iii, B, 2 where *n-s* takes the place of this character on M iv, A 2, and iv, B 2: and also on M xxi, 4, where after the 'chair' hieroglyph occurs  , which is replaced by  *n-as* in a similar passage in M lii, 5.]

[8] Probably a place-name but not easy to read.

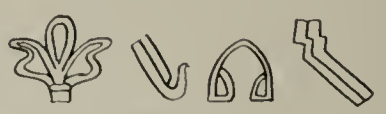
[9] *u* or *ir*: see § 69.

[10] For Tabal see translation of M xvi at end.

[11] See § 73 (*a*).

lord of Tabal, son of the ally of our ancestors,[1] Lalli(?): (make alliance with us)'.[2]

In this last case *ni-ni* 'son' replaces the group *nin*(*n*)-*s* in (6), thus giving definite indication of the value of the flower-character. With *ni-ni* = 'son' we can translate the first line of M XV, B (§ 3) . . . "*San*(*n*)-(*g*)*gar-s Bar*(?)-*ḫu-nin*(*n*)[3] 'lands'-*ḫ ma*(?)[4] *ni-n-s : San-gar-s*, 'Sangar, son of Barḫu (?), great chief of lands, son of Sangar'. The custom of calling a son after his grandfather is well known, so that we may here again see proof that *nin* = *ni-n* = son.[5] Additional proof, if it were needed, is to be found in the Ivriz inscription discussed in § 87 (see also the translation at end), where Tesup-mis, who has been adopted by *A-r-ar-a-s*, calls himself *A-r-ar-a-nin-s* (i.e. Ariarathides), while *A-r-ar-a-s* on the same sculpture greets him as *n"-ni-mi* 'my son'. To conclude the proof of the value of the character *nin* we may notice cases (5) and (6) of the next section, where it is followed and preceded by *n*.

We may therefore read the name of the chief  as *Nin-n*(*a*)[6]*-s-Ḫ* i.e. the Ninni against whom Shalmaneser fought (§ 24).

§ 51. With the value *nin* for  we may approach what has been perhaps the greatest crux in Hittite hieroglyphics. Who or what is concealed in the following phrase?

(1) M ix, 1 

(2) M ix, 2 

(3) M ix, 4 

(4) M xi, 3 

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[1] These characters are uncommon, and form a group. It seems to me that this must mean 'the dead' or some similar phrase, and certainly the whole phrase 'ally of our dead fathers' is a most probable one. The other occurrences of which I know are M xxi, 2, *bis*, and M lii, 4, where the same meaning is suggested (see translation at end and § 87); if this be right, the ideographs might be explained as a burial-shaft and a coffin.

[2] See § 14 (*c*).

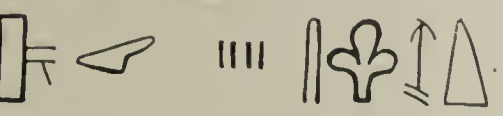
[3] I would suggest the name Bar(?)-ḫu which occurs on TA 3, but it is a doubtful reading. See also § 73.

[4] Character doubtful, but it may be *ma*, or perhaps the title discussed on p. 77.

[5] For syntax and nominative of this word, see §§ 66, 84.

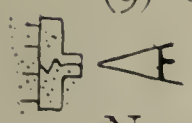
[6] Allowing, of course, for the emendation of my hand-copy mentioned in § 49, *note*.

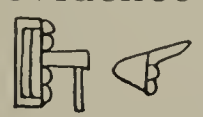
(5) New Jerabis 

(6) M xviii, B (from Gürün)  [1] As is noted in the preceding section,  is followed by *n* in (5) and preceded by *n* in (6).

(7) M x, 1 

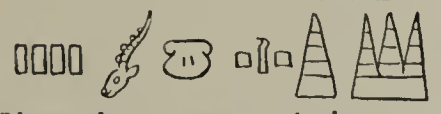
(8) M xi, 2  [2]

(9) One of the new Jerabis inscriptions has apparently for a distinct word 

Now these groups (1)–(4), (6)–(8) have hitherto been held by general consensus to contain the word Carchemish, from the time that it was suggested by M. Six to Professor Sayce (see *PSBA.* xxv, 1903, 142) until Jensen (*Hittiter und Armenier*, 30), whose views are endorsed by Messerschmidt (*Corpus, Nachtrag*, 9). I cannot in the least agree with this identification: and (9) from Carchemish, badly rubbed though it may be, with the characters mutilated, throws its evidence into the balance against this, by giving us (if my reading be correct)  as distinct from the latter half of this long group. Since the groups (1)–(8) all indicate that a place-name is concealed towards the end of this group, and (9) possibly shows that the first two characters form a word by themselves, it is not unlikely that this first group, which is sometimes marked with a tang, is a personal name. This becomes certain when the final epithets of (1) and (7) 'ruler of countries', and of (2)-(5) 'lord of chiefs' are taken into consideration; and hence the place-names mentioned in the groups will show his dominions. Eliminating his name we get:

 *san Nin-mi-s-*'city',

 *san As-ir-*'city'-'country',

 *san As-r-a-*'city'-'country'.

Obviously *san Ninmis*, *san Asir*, and *san Asra*,[3] '*san* of Nineveh', '*san* of Assyria'. Then in that case does  *san* = 'king'?

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[1] This reading is due to Professor Sayce.

[2] This character is obvious on the stone in the B.M.

[3] Rams. 4 appears to contain this name  *As-ir-zi-*'country', 'in Assyria'.

§ 52. *San* and *šan* occur in Hittite cuneiform thus: (A ii, 7, 8) *nu [s]a-an ḫa-an-ṭa-an am-me-el ḳa[r]-t[a]b-ia [š]a-an ḫi-iš tu-ši.* This *ša-an* occurs on Y 22 *AN. UD-un ša-an ḫi-eš-kan-zi*, and inasmuch as *sa-an* is followed by *ḫa-an-ṭa-an* and *ša-an* by *ḫi-eš* it is possible that *ša-an = sa-an*, the √*ḫ* being our root 'great'. 'The Sun-god, the great king' is plausible for Y 22. *Bît*(?)-*sa-a-ni* occurs on a Tel-el-Amarna tablet (Berlin, 199, 7), but the context gives no help; 'house of the king', i.e. 'palace', is tempting, but there is no evidence for it.

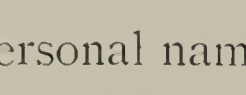
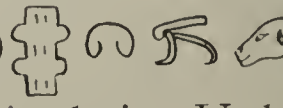
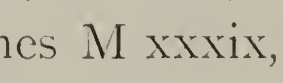
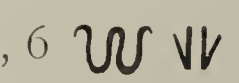
The hieroglyphs will help us more:—

(1) (§ 28) 'Panammi *san* with R his brother.'

(2) M xi (§ 40) traces, followed by *san-e a-b*(*a*) : *"Pan-am-mi* '(So-and-so) the kings with Panammi'.

(3) M xxxv, 1 (Sayce's corrections) where the place-name is followed by  , which, as it stands, can be read 'great king'. Similarly in l. 2  (*Bar*(?)-*lal*(?)-*s*), the name of the king, is followed by  *san-s.*

(4) M lii, 4, looks like a king's name ('So-and-so the king').

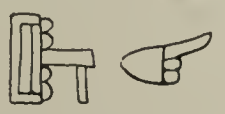
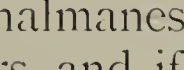
(5) We find some personal names thus compounded: M x, 2  , TA 4  , and probably (new Jerabis)  [1], the name of a 'chief of the Nine' (M x, 2), who is  -*as* of U-'m-ḳ, i.e. Unḳi, the Amḳ of the Zakir stele (§ 23, *note* 1) and present day. His name appears similar to Chemoshmelek, Malkiel, Elimelek, Adramelek, Nabû-malik, &c. Compare also the seal-names M xxxix, 6  *Tesuḫ*-?-*san-s*  'Tesup is king': M xl, 6  'Tesup, friend of the king', or 'Tesup, befriend the king', like Adad-nirari or Adad-šarri-uṣur (if the 'hand' sign is that outstretched in welcome).

Notable is the beginning of the three Hamath texts M iii, B, iv, A, B, 'Saith unto  *san-s "Ir-ḫu-li-n*(*a*)*-s.*' The hieroglyphs read *ḫu : an* (§§ 38, 68 *note*); the verb 'to say' takes an accusative (§ 85), and I can only see in this, 'Saith Irḫulîna unto the nobles of the king, ("Make alliance with us for (? or against) the king of Hamath")' (§ 80).

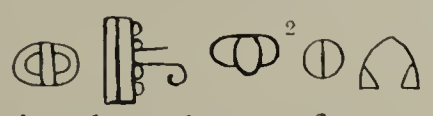
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[1] Read: ?-*s*(?)-*an Am-k* '?-*san* of Amḳ, &c.' *s-an* (§ 68, *note*) appears to be equivalent to : cf. (?) also *s-n-zi*, TA 6 (see translation at end). Comparable to this name is the name M xxxi. The god-name occurs on M xliii, 8, with 'god'-*Targu*, under the winged sun-figure, and hence I have assumed it to be the sign for the sun-god. With regard to Amḳ, I cannot help thinking that *U-'m-k* is the proper reading on M xxxii, 3.

If *san-s* means 'king', we can compare Συέννεσις, a common name of the kings of Cilicia, the first known dating back to the sixth century. The final *-is* would be the Greek termination added to *san-s*: the *upsilon* in the first syllable would represent that helping vowel which is found in Ariarathes (spelt *A-r-ar-a-s* in Hittite), perhaps, too, in Ariamnes, the Assyr. Kiakki (? for Kâki, which also occurs, spelt *k-a-k* in Hittite), and the Turkish forms Kiamil for Kamil, &c.

§ 53. At any rate there appears to be considerable probability that  *san* = 'king', and in our groups in § 51 we have 'king of Nineveh' and 'king of Assyria' with the same name  in front of them. Moreover, these groups are followed by either 'ruler of countries' ((1), (7)) or 'lord of chiefs' ((2), (3), (4), (5)). Hence we must see some king of Assyria concealed in this name, and since the texts containing it also mention Panammi, Arame, Katê, and Kirrî, it must be Shalmaneser II. But this name is too long syllabically for these two characters, and if we read it thus (in syllables) it must be shortened to the form found in Hosea x. 14, Shalmân, which is supposed by Wellhausen and Nowack to be another Shalmaneser.[1] On the other hand, the first character represents a god's name in other passages, and it may be that here as in the other proper name  , the sign for 'god' has been purposely omitted (as also in M xxxii, 1, and the seals M xxxix, 4, 5, 6, 7, 8, 9), and in such a case it would be difficult to define the value of  . In that case the god would be the equivalent of Šulman.

§ 54. I only know one other case in which the first character occurs; it is in another name in texts of the same period as the above:—

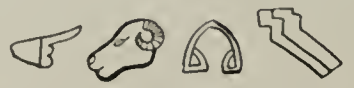
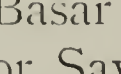
(M 1)  [2]: and on a new Jerabis text where the termination is *-eni* in the place of *-es*.

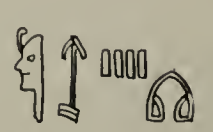
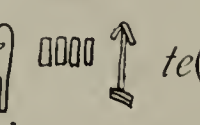
Speculation on the possibilities of this name as yet seems ill-advised, and unfortunately it is almost as unprofitable to seek help from = *man* (?).

§ 55. This latter character occurs (1) in a place-name in a new Jerabis

[1] Abbreviations in Assyrian are not uncommon: Šuzubu is short for Nergal-ušezib or Mušezib-Marduk. Compare also Pul. Indeed, on M x, it looks very much as though the Hittite king's name also was abbreviated (see translation at end).

[2] This character occurs or is omitted apparently arbitrarily after the god Tesup's name; it would appear to be the winged disc (see Ramsay's inscription, *PSBA*. xxxi, 1909, 83). It occurs alone syllabically in M iii, B, 2: vii, 1 (?): xii, 3: TA 6.

inscription  *"?-man(?)-a-ḫ-*'place' (it is almost certain that the broken sign over the ideograph for 'land' does not belong to this word); (2) a place-name M iv, A, 2  *"Ar(?)-man(?)-a-ḫ-nas-e-a-*'place'; (3) a chief's name in M xi, 3,  *Man(?)-am-s-Ḫ*, recurring in l. 4[1]. We find Arman (?) of (2) paralleled in the two texts M iv, B : iii, A by *B-s-ḫ-r*, which might be Tel-Bašar (ancient Til-Bašerê), and *?-r-an*, for which I can suggest nothing. Professor Sayce, reading  as *ga*, would make Argana out of (2), a place near Hamath, but this is impossible unless we read it *gan*, which is against our suggestion *man*. If Ar-man were right, and if there were a change from *r* to *l*, Arman might be Alman, Aleppo: or possibly, recognizing the Hittite cuneiform *pi* = *wi* and the hieroglyphic *mi* = *wi*, and that *d* took the place of *n* as in *A-nin-na* = the Adinna of the Assyrian records, we might see Arpad in Arman. (1) is entirely unsolved. This, too, might be some form representing Ḫalman, Aleppo, but with so little support it is far better to leave the question unsolved without confusing the issue until more texts are published. This need not interfere with the translation '[Shalmaneser (?)] king of Nineveh' or 'king of Assyria' which I have suggested.

§ 56. This is a fitting place to discuss whether the form  *"Pan-mi san-s* 'Pan-mi, the king', is a variant spelling of Pan-am-mi (which is defined once by *san* following). The two never occur on the same text (nor does either occur on M lii, which mentions Garali, who was the father of Panammi). The syllable *Pan* is marked by the tang in the form of a curved line over the forehead, and the whole is thus distinguished from  *te(?)-san-mi* 'I have said' (M v, 1, 4); this form *"Pan-mi san-s* occurs M ix, 1 : xv, A, 1 (?) : xix, C, 18 : xxi, 4 : *"Pan-mi san-nas* occurs M xxi, 3 : *"Pan-mi* without *san-s*, M xxii : xxxii, 1, 4 : *"Pan-mi-u*, M xxi, 4. I am inclined to believe that this is only *Panammi* spelt incorrectly: the places Mar'ash, Carchemish, Izgin, Bulgar-Maden (if the text is right) are all probable places to find his alliance courted: even in Bulgar-Maden we find Nis-t, a king of the Mar'ash texts, quoted next his name (if I have read the occurrences aright). It is certainly a curious coincidence that the phrase '"throne"-*n-(n)as-mu-k-n*' should occur only in M xxi, 4, spoken by *"Pan-mi-u*, and in M lii, 5 by 'Gar-[a-li ?], son of the Nine' (Garali being mentioned under (probably) the same title in l. 4).

[1] I can only offer a very poor suggestion here, that this name occurs in M viii, 4, *M-n-n(a)-m*.

The Personal Pronouns.

§ 57. From a discussion of some of the proper names we can now turn to the grammar, examining the grammatical forms in both Hittite cuneiform and hieroglyphs. The personal pronouns (suffixes) are as follow in Hittite cuneiform[1]:—

Sing. 1: -MI: *AN.UD-mi* 'for my Sun-god', A i, 13: *kat-ti-mi* 'as for me', A i, 3: *E.ZUN-mi DAM.MEŠ-mi DÚ.MEŠ-mi*, &c., 'unto my houses, my wives, my sons, &c. (there is well-being)', *ibid.*
-MU: *ma-mu* 'my lord', A i, 17: *wa-ra-at-mu*, *ibid.*, 18: *nu-mu* 'to me', A i, 25, &c.: *ia-mu* 'with me', W 19.
(attached to nom. sing.) -MIŠ: *ḫa-la-aš-mi-iš* Y *r.* 6: *am ḫa-lu-ga-tal-aš-mi-iš* 'my messenger', A 1, 23: *ki-iš-ši-ra-aš-mi-iš-wa* Y 39: cf. Y 24.
(attached to acc. sing.) -MIN: *ḫa-lu-ga-tal-la-an-mi-in*, A i, 12.
(attached to an oblique case pl.) -MAŠ: *DÚ.MEŠ-aš-ma-aš* 'my sons', Y 42.
Sing. 2: -TA: *kat-ta* 'as for thee', A i, 7: *nu-ut-ta* 'unto thee', A i, 22.
-TU: (cf. *tu-el* A i, 24, &c.).
-TI: *DÚ.SAL-ti* 'for thy daughter', A i, 22: *E.ZUN-ti DAM.MEŠ-ti DÚ.MEŠ-ti*, &c., 'unto thy houses, thy wives, thy sons, &c. (may there be well-being)', A i, 8.
(attached to nom. sing.) -TIŠ(?): *u-uš-ti-iš*? C ii, *r.* 7.
(attached to acc. sing.) -TIN: *am ḫa-lu-ga-tal-la-at-ti-in* A i, 19: perhaps *kab-bu-wa-at-tin*, Y 19.
(attached to oblique case pl.) -TAŠ? (cf. *ki-iš-ta-aš*, Y *r.* 17 *bis*).
Sing. 3: -Š: *nu-uš* 'to him', Y 11, 15, &c.; *i-aš* 'with him', Y 28.
-ŠI: *nu-uš-ši* 'unto her', A i, 14 (*nu-ši* 'unto him?', Al *r.* 13): *SAG. DU-ši* 'for her head' A i, 14: *at-ti-iš-ši an-ni-iš-ši* 'to his (?) father, to his (?) mother', Y 17.
-ŠA (?): *ḫa-lu-ga-tal-la-ša*, A i, 23: *ilu Te-li-bi-nu-ša*, Y *r.* 9.
-ŠU: (*na-ak-tam-šu* Y *r.* 14, with *na-ak-tam-mi* in the next line).

[The forms *nu-šu-uš*, Al 8: *an-tu-uḫ-šu-uš*, A i, 25, are possibly to be inserted here: *-ša-an* is common: *E.AN-iš-ša*(or *ta*, as in the cuneiform?)-*an* 'his (?) temple', O 3: *ka-ni-eš-ša-an* W 19: cf. (?) *nu-uš-ša-an*, Y *r.* 26: particularly *ma-a-an-ša-an* 'his (?) lord', Y *r.* 8: *na-aš-ša-an*, Y *r.* 7, &c.]

Pl. 1: -NA: *a-bu-u-un-na* 'our father' (pointed out by Sayce), Y 27, 28, 31: *ma-a-an-na-kan* 'unto our lord'? N 3.

[1] Sayce gives the following forms (Y p. 49): *miš* or *mêš*, pl. *mâš*, 'mine', gen. dat. *mi* (*mu*), acc. *min*: *taš*, *tiš* 'thine', gen. dat. *ta*, *ti*, *tu*, acc. *tan*, *tin*, pl. *tâš*; *šaš* 'his'. See also Torp and Bugge in Knudtzon, *Die zwei Arzawa-Briefe.*

-NI (there are several words ending in *-ni*, but the meaning is not certain): but *ma-ni* 'our lady (?)', A i, 12, is possible.

-N: *ma-a-an* 'our lord', Z i, 9: *ma-a-an-za* 'unto our lord', *ib.* 1.

-NAŠ (cf. *na-aš-ta* 'unto us'?, A i, 19).

(attached to acc.?) -NAN (cf. *ḫal-za-a-i-na-an* ?, A ii, 15: *ku-na-an-za-na-an*, Y 6).

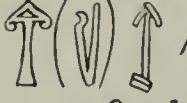
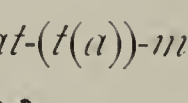
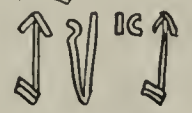
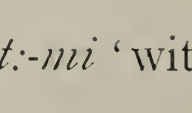
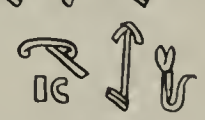
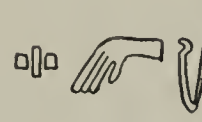
Pl. 2: -UT? in *nu-ut*, Y 44: *ti-(in)-nu-ut*, Y 8, 20 (cf. *ti-(in)-nu-zi*, Y 15, 27): *ti-it-ta-nu-ut*, W 19? (cf. the form *ṭa-a-ḫu-u-ut* . . (D 19)).

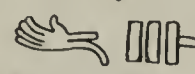
Pl. 3: -U: *kat-tu*, E 8, 16 *bis*: *a-ba-u* 'with (or from) them', Al *r.* 8, 11: *nu-u-ZUN* 'unto them', Y 12: *u-ul*, Y *passim*: A ii, 4, 6, 8: S i, *r.* 4. There are also several words ending in *-u*, but the meaning is uncertain.

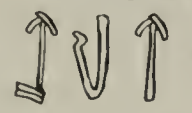
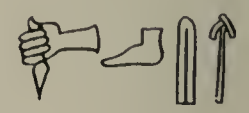
The Absolute Pronoun.

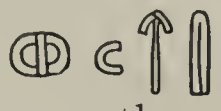
In § 6 we have already seen *me-e* 'I am'; 'myself' was suggested for *i-ia-zi* (Y p. 49) by Sayce, and since then it has been settled by Z 1, 2, which is the greeting of a letter to the king *ša-li-im i-ia-zi* 'I am well', the word *iâzi* being borrowed from the Assyrian *iâši*. But the most common independent pronominal series is found by adding the suffixes to a base *kat*, i.e. *kat-ti-mi* (A i, 3), *kat-ta* (A i, 7), *kat-tu* (E 8, 16 *bis*). Their use is clear from A i, 3 ff. *kat-ti-mi DMḲ-in* 'I am well' followed by a long list 'it is well with my houses, my wives, &c.' The next register (l. 7) begins *du-uḳ-ḳa kat-ta ḫu-u-ma-an DMḲ-in e-eš-tu* 'as for thee, mayst thou be very well'.[1]

§ 58. The corresponding pronouns in the hieroglyphs are:—

Sing. 1: -MI:  *kat-(t(a))-mi* 'as for me' (§ 61):  *e-a-mi* 'with me' (§ 47):  *mi-t:-mi* 'with me' (§ 81):  *t(a)-a:-mi* 'to me' (§ 80):  *ḫu:-mi-si* 'among (?) my nobles' (TA 5): verbal suffix:  *a-an-t:-mi:* (M ix, 4).

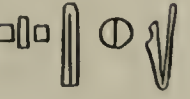
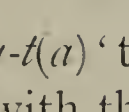
-MU:  'ally'-*mu* 'my ally' (§ 42).

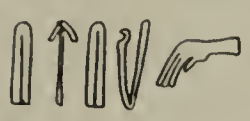
-M:  *mi-t-m* 'with me' (new Jerabis, §§ 35, 81):  'enemy'-*k-n-m* 'against my enemy' (§ 33, *note*).

-M-N:  'god'-*ḫ-m-n* (M xxi, 4), apparently 'by my great god' in an oath.

-MI-N (are we to include here M ii, 5, *r-n-mi-n* ?).

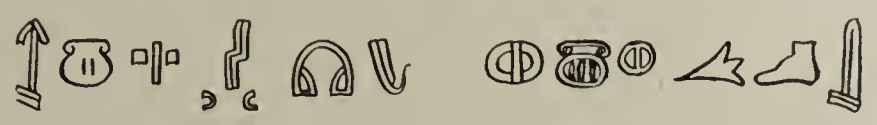
[1] Knudtzon, *Die El-Amarna Tafeln*, pp. 270 ff.: *Die zwei Arzawa-Briefe* (with additions by Torp and Bugge).

Sing. 2: -T(A):  *kat-t(a)* 'as for thee' (§ 61): *a-b(a)-t(a)* 'with thee' (§ 46):  *k-a-n-e-t(a)* 'thy friends(?)' (§§ 46, 88):  *a-b(a)-u-t(a)* 'thy father' (?) (§89): verbal suffix  *san-m-t(a)* 'I will make with thee' (M ix, 2).

-TAN:  *n-m-n-t-an* 'thy covenant' (§ 68).

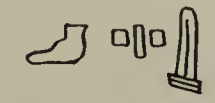
Sing. 3: -S:  *kat-s* (§ 61): *-k-n-s* (§ 33, *note*): 'Panammi the king with R brother-  ' (§ 28).

[-SAN: are we to consider the following as an example?



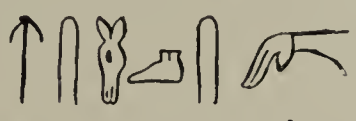
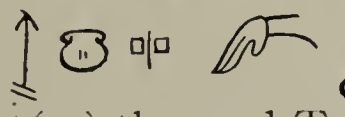
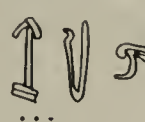
mi-r-a ḫ;-s-n(a) 'god'*-r-e ar-k-ni* (read thus (?)) . . . 'before his chief(s) by the gods we have sworn (?)' (a possible translation; see translation at end, M vi). Cf. also *ḫ-s-n(a)*, vii, 1.]

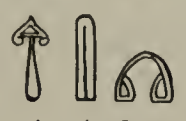
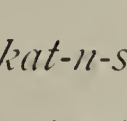
Pl. 1: -NA:  : 'ally': *-n(a)-a* 'our ally' (M xxi, 3) (also *nis-n(a)-a* 'our son').

-NI:  *k-a-ni* 'our friend (?)' (for *k-a-n-ni*, § 46): 'ancestors'-  *ni* (§ 50):  *kar-ni* 'our *kar*' (M ix, 5): also 'ally'*-ni* 'our alliance (*or* hands)' M xxxiv, A, 2: *ID-k-ni* 'our war' (M ix, 5).

-N:  *kat-n* 'we (are)' (§ 61):  *a-b(a)-n* 'with us' (§ 46).

-N(A): *s-e* 'ally'*-n(a)* 'document(s) of our alliance' (M xxxiv, A, 3).

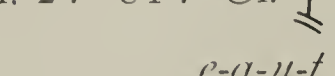
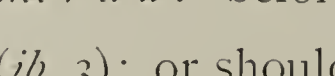
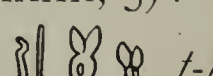
-AN:  *m-n-u-k-n-an* 'for our memorial(?)' (M ii, 4):  *mi-r-a-an*[1] *:t-e* 'before us he hath said' (M ii, 6): '(as) the god Tesup  *mi-t-an* (?) (is) with us' (new Jerabis) (also *n-m-n-an*, M i: iii, B, 3: iv, A, 3: iv, B, 2).

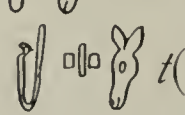
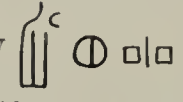
-NAS (cf.  *kat-n-s* (§ 61)):  'brother'*-nas* 'our brother' (M vii, 1) (cf. 'city'*-ḫ-(an)-n-s* (or *nas*) 'our great city' (M iii, B: iv,

[1] A division-mark has been omitted in the hieroglyphs here.

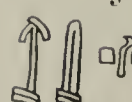
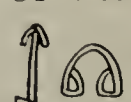
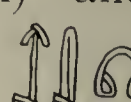
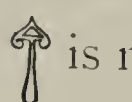
A, B): 'throne'-*n*-(*n*)*as* 'our (?) throne' (M xxi, 4 : lii, 5)): verbal suffix *ar-k-n-as* (M vi, 3).

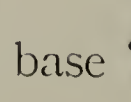
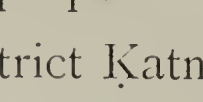
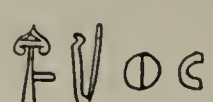
-NIS probably, in *ar-nis* 'join us' as a verbal suffix (translations to M xxi at end). (Is *nin* (M ix, 4) as a verbal suffix, or *ni-n* (M ii, 6) as a nominal suffix, to be placed here ?)

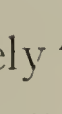
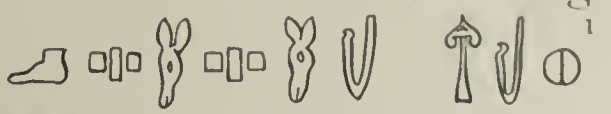
Pl. 2 : -UT ? Cf.  *mi-r-a-u-t* 'before you' (?) (M xxxii, 5) :  *e-a-u-t* 'with you' (*ib.* 3) : or should we see it in  *t-u-si* (M xi, 3), like the *tu-el* of the cuneiform ? [Is '440 *t-u*' (M viii, 3) to be placed here ?]

Pl. 3 : -U :  *kat-u* (§ 61) :  *a-b(a)-u* 'with them' (§ 40, M xv, A, 2) :  *t(a)-a-u* 'to them' (§80) :  *u-si* 'for them' (§ 37, *note* 1, TA 5, 7), and probably  *e-a-u* 'with them' (M xxxiii, 9). (As an example of words ending with *-u*, are we to see it in the *-iu* of *m-ni-u*, from *m-n-u*, M ii, 2 ? (see translation of M ii at end).

The Absolute Pronoun.

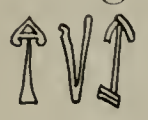
§ 59. We have seen (§§ 6, 19) that both  *mi-* or *mi-a* 'I (am)' and  *mi-ni-* or *mi-ni-a* 'we' occur, with an oblique case  *mi-s* and  *mi-ni-s* (§ 14). It seems that the series formed by adding the suffixes to the base  is more common.

§ 60. By following up the suffixed pronouns in the hieroglyphs we find that *-mi*, *-t(a)*, *-s*, *-n* (*-nas*), *-u* can all be appended to the base  (see §§ 58, 61), which, on the analogy of the Hittite cuneiform *kattimi*, *katta*, &c. (§ 57), would lead us to read this character *kat*. Fortunately there is sound proof of this from at least one proper name, and perhaps two, in the hieroglyphs. One is the name of the district Katna (*Anp.*, King, *Annals*, 281), M ix, 4  *Kat-n-a-u-t* (see end for a fuller translation), the *-a-u-t* being the gentilic termination as in *K-a-u-a-u-t* below. The second is still better vouched for :  "*Kat-t-e-Ḫ* (M lii, 5) is evidently a chief, both from the 'tang' and the *ḫ* ; the name occurs

again in ix, 4 (and possibly in M vi, 2: xix, 5, 7: lii, 3); in the long Jerabis inscription it occurs in such a way as to leave no doubt who is meant, settling at the same time definitely the value of  = *u*, thus  [1] *K-a-u-a-u-t Kat-t-e* 'the tribe Ḳauai of Katte'. Katê (as the Assyrian records spell him) was chief of the Ḳauai (§ 27).

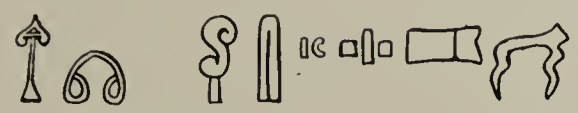
§ 61. With the value *kat* proved, we can examine the occurrences of this pronoun:

1st pers. sing. *kat-mi*: (1) (§ 47 (10)) *kat-mi n-m-n-an* [2] 'engrave' *e-a Adad-id*(?)-*r a-ḫ-m-*'place', 'I our agreement engrave with Benhadad the great['s city (?)]'. A similar phrase occurs on M iv, A, the difference lying in the name *Tal*(?)-*Ḫ Am-s-*'place', 'Talas(?) the chief of Ams (Homs?)' (§ 44).

(2)  *kat-mi*:*g*(*k*); 'I (will) come' M viii, 2. On *g*(*k*) as an ideogram see § 70. Cf. also M i: iv, B, 2: xxxiv, 1. The form  *kat-t*(*a*)-*mi* occurs on a new Jerabis inscription.

2nd pers. sing. *kat-t*(*a*): (1) (§ 46 (2)) *t-e-r-a kat-t*(*a*) *k-a-ni a-b*(*a*)-*n san*(*n*)-*s-t*(*a*):, 'They say "Thou (as) our friend (?) with us shalt act".' On *k-a-ni* see § 88. Cf. M x, 5.

3rd pers. sing. *kat-s*: (1) (M ii, 6)  *kat-s*: *?-ni-n t-e*: 'He to our (?) alliance (?) saith'. On the meaning 'alliance' see § 67, *note* 1.

(2) New Jerabis  *kat-s ?-n*: *a-ṭ*(*a*)-*ir* 'He a . . . (?) hath given'. The ideogram is difficult: a character somewhat similar occurs in TA 4, 5 (*bis*). Cf. also M viii, 4: xi, 4, 5: xv, B, 2: xxiii, 3; Ramsay, *PSBA*. 1909, 83.

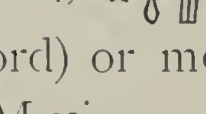
1st pers. pl. *kat-n*: (1) (§ 46, 1) *t-e-r-a kat-n k-a-n-e-t*(*a*) *a-b*(*a*)-*t*(*a*) 'They say "We (are) thy friends (?) with thee"'.

(2) (*ib*. 3) *t-e-r-a kat-n k-a-n-e a-san-n-t*(*a*) 'They say "We (as) friends (?) have acted towards thee"'.

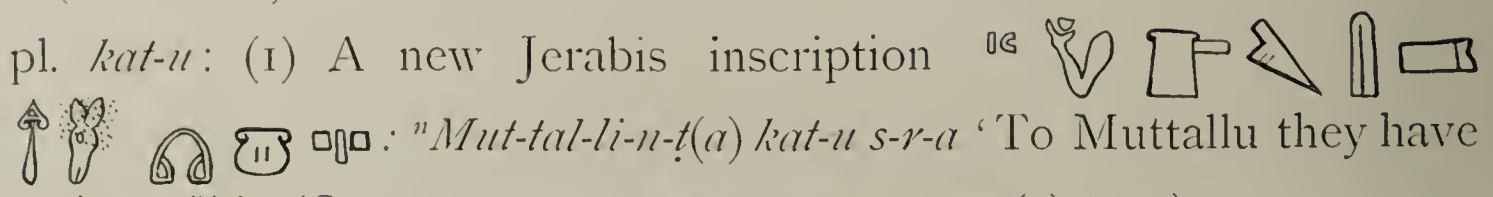
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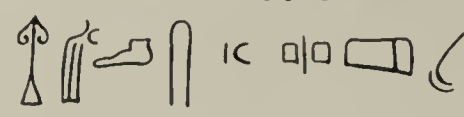
[1] I copied these two characters  , an obvious error.

[2] See § 68, note 1.

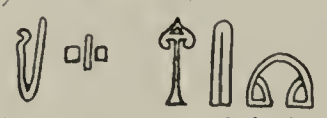
(3) (TA 4)  *: kat-n : t-e : I ;* 'We are one speech' (i.e. in accord) or more simply (*ib.* 5)  *: kat-n : I ;* 'we are one'. Cf. M xi, 4.

2nd pers. pl. (not found).

3rd pers. pl. *kat-u*: (1) A new Jerabis inscription  *: "Mut-tal-li-n-ṭ(a) kat-u s-r-a* 'To Muttallu they have written (?)'. (On *s-r-a* see §§ 32 *note*, 69: on *-n-ṭ(a)* § 79.)

(2) M xlviii, 2  *: kat-u-k-n : a-ṭ(a)-ir* 'to them he hath given'.

§ 62. There are some other forms with *kat* which must be mentioned here.

(1) *Kat-n-s*, which seems to be an accus. 1st pers. pl. New Jerabis:  *ṭ(a)-a kat-n-s* 'for us' (§ 80).

(2) *Kat-k* (which may be a proper name ?), M xii, 1, 3 : xxxiii, 9 : xlvi, 2.

(3) *Kat;-a*, M 1 and xlvi, 1, for which I cannot suggest any explanation unless it be a form of *kat-u*.

The Hittite Noun.

§ 63. The noun in cuneiform shows the following cases :[1]

Sing. nom. *-uš, -aš* : *AN . UD-uš*, Y *r.* 11 : *LUGAL-uš*, A ii, 16 : *AN . IM-aš* Y 21 : *^{am}ḫa-lu-ga-tal-aš*, A i, 23.

acc. *-un, -an* : *AN . UD-un*, Y 21, 22, 26 : *^{ilu}Te-li-bi-nu-un*, Y 29 : *NI-an*, A i, 14 : *^{am}ḫa-lu-ga-tal-la-an*, A i, 12.

gen. *-aš* : *I su-ḫa-la-li-ia AZAG-GI-aš*, A i, 15.

dat. *-i* : *AN . UD-i*, Y 21 : *LUGAL-i*, Z i, 15.[2]

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[1] The nominative and accusative have long been known ; Sayce considers that the genitive-dative case was expressed by a vowel, and that *-ša* denoted a case of dependency and probably the vocative. 'The nom. and acc. pl. terminated in *-aš* and *-uš*, as well as in *-t* or *-d*, but the relation between the two terminations is not yet clear. *-an* appears to have been the suffix of the gen. pl.' (Y p. 48). See Torp and Bugge in Knudtzon, *Die zwei Arzawa-Briefe*.

I believe the dative is best exemplified by (1) *AN.IM-aš AN.UD-i bi-i-e-it* (Y 21) where the god Hadad is nom. and 'sun-god' (i.e. the king ?) is in an oblique case, not the accus., after *bi-i-e-it*, a verb. In Y 9, 17, 26, 31, 34, 37 occurs a word or name *ḫa-aḫ-ḫi-ma-aš* of which *ḫa-aḫ-ḫi-im-mi* is found in Y 38. Certain names occur in the nominative without *-š*.

[2] *AN.IM* makes *AN.IM-ni*, Y 34.

? abl. *-ša* : *AN. UD-ša*, Y *r.* 10 : *AN. IM-ša*, Y 20, 23 : *^{ilu}Te-li-bi-nu-ša*, Y *r.* 9 : *^{am}ḫa-lu-ga-tal-la-ša*, A i, 23.

This last case, the ablative, seems to me somewhat doubtful, and the *-ša* may perhaps be a suffix (cf. § 57).

Masc. Plural. Nom. *-e*[1] :

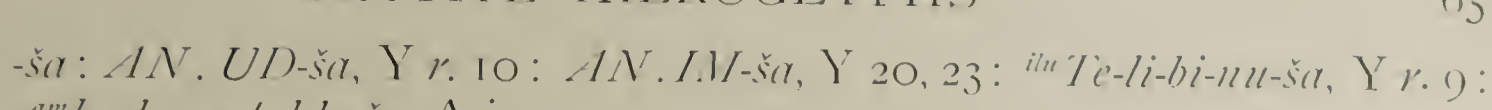
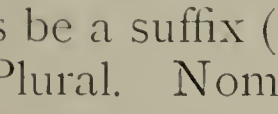
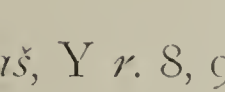
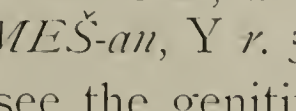
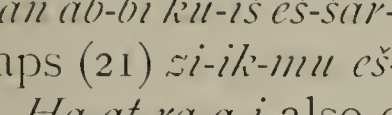
An oblique case *-aš*[2] : *AN. MEŠ-aš*, Y *r.* 8, 9, 10 : *GAL-GAL-aš* A i, 4, 8 : *HAR. SAG. MEŠ-aš*, Y 10 : [neuter, *KUR-e*, A i, 27 ?]

[accus. *-an* : *AN. MEŠ-an*, Y *r.* 5].

I am inclined to see the genitive plural in the cuneiform *-ai* in A ii, 14 *ki-i-kan ab-bi ku-iš eš-šar-[aš] ḫal-za-a-i na-an an-pa . . ḫa-at-ta-an-na-aš LUGAL-uš*; perhaps (21) *zi-ik-mu eš-šar-aš aš-šu-u-li ḫa-at-ra-[a]-i nam-ma-za tag-an EGIR-an i-ia*. *Ḫa-at-ra-a-i* also occurs *ibid.*, 13, but it is difficult to decide whether words ending in *-i* are not in the dative singular. Compare also C ii, 3 *ik-ra-a ma* (?) *ni tab* (?) . . . with C ii, *r.* 3 . . . *ik-ra-a-e e-ra-a ṭa-a-e*.

The Hieroglyphic Equivalents.

§ 64. About the masc. nom. sing. *-s* there is no difficulty[3] : the proper names end either in  (*Araras*, M xxxiii, 1 : *Targu-r-s*, ix, 2, &c.), or, like Labbaia, have no case ending (*Tesup-id*(?)*-r*, § 33, *note* ; *"Gu-am* TA 3): *Pan-mi san-s*, 'Panmi, the king', gives an example of *-s* with common nouns (§ 52 ff.). The accus. sing. in *-n*(*a*) is clear, e.g. 'bowl'-*n*(*a*) (§ 7) : *gu-'u-n*(*a*) (see notes to M i at end).

The genitive in *-s* is equally clear: (M ii, 1) 'Saith Ṭ(a)-?-ar-s unto Mutallu the great, his son (?), Thy father (?)  *Tesup-id*(?)*-r a-ḫ-s* "god"-*Tesup-s : kar-k-u*, &c., (and) Benhadad for the glory (?) of Tesup (*mmiu* [their memorial (?)] have given thee).' (M ii, 4) 'our allies (?) have graven  *m-u-u-s : ID-u :* "the leg (?) of the *muu* [memorial (?)]".' M iii, B, 1 : iv, A, 1 : iv, B, 1 show it in  *ḫu:-an san-s* 'unto the nobles of the king' (§ 52). We must see the dative in *-i* in *Nis-t-e* (§ 50 (3)), and either in the form  *Targu-r-e* in a new Jerabis inscription (from Targu-ras) or in the mutilated form *Targu-*[*r*]*-ni*, M xi, 3, parallel to the form  ?-*e-ni* (like *AN. IM-ni* of the cuneiform) on a new Jerabis

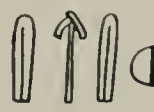
[1] This is made certain from the hieroglyphs.

[2] *GAL-GAL-aš* occurs in the opening phrase of A i, 'it is well unto the chiefs of my people'.

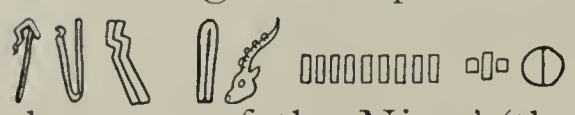
[3] Sayce and Jensen both recognized this.

inscription. The genitive of this latter name ends in *-e-s* (M i). Proper names apparently have also a case ending in *-u*, e.g. *Nis-t-u* (§ 49), *Pan-mi-u* (M xxi, 4), *Bar-k-u* (M i). I cannot find any case of the ablative or instrumental in *-ša*.

The masc. plural nom. *-e* is more easily determined from the hieroglyphs than the cuneiform: § 46 shows this plainly, *kat-n k-a-n-e-t(a) a-b(a)-t(a)* 'We are thy friends (?) with thee'. *san-e* 'kings' occurs in M xi, 2 (§ 52 (2)) (or is this dat. sing. ?).

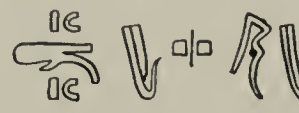
The neut. plural accus. ends in *-e* (we may assume that the nominative was the same): 'So-and-so  *n-m-n-e* agreements with me graveth' (§ 47 (7): for other instances see § 68):  *?-b-r-e* in the accus. after a verb (§ 37).

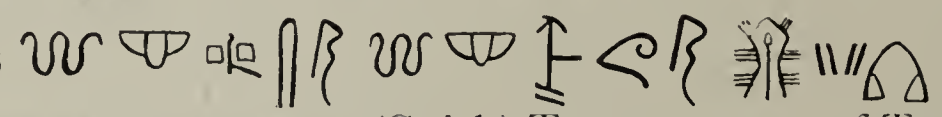
The masc. plural accus. is found in *-an* in *ḫu:-an* 'unto the nobles' (M iii, B, 1 : iv, A, 1 : iv, B, 1, § 52).

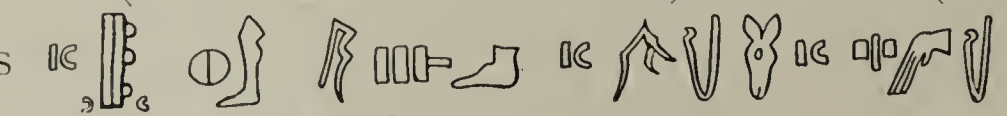
The genitive plural ends apparently in *a-e*: e.g. in a new Jerabis inscription  *Nis-t-ḫ n-as*[1] *IX-a-e*[2], (So-and-so and) 'Nist the chief, the sons of the Nine' (the reading of the first and third characters is a little doubtful): similarly M lii, 4. This is comparable with the *-a-i* of the cuneiform.

On certain Nouns.

§ 65. *The word for 'son' partly described in* § 50. The nominative appears to be *nis*, for we find

(1)  : 'ally' :*-n(a)-a nis-n(a)-a* 'our ally, our son'. M xxi, 3.

(2) Perhaps  *Tesup-a-n nis Tesup-mi-am nis Gar-sam-s*, '(Saith) Tesup-an son of Tesup-ammi (?)[3] son of Garsanas ("make alliance with me").' M xxxi (Nachtrag).

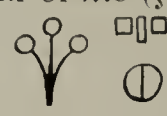
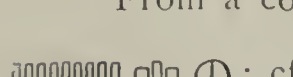
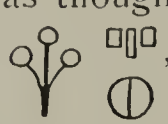
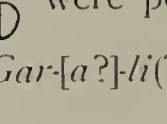
(3) Perhaps  : *ID;* (name) *nis-mu-k* : *"Nis-t-u: a-an-t* (TA 4).

(4) Perhaps M xi, 5 (*u-s*)-*Targu-nis*. (Cf. the name Ḫaiani (§ 73).)

The accusative has been shown (§ 50) to be *nin*.

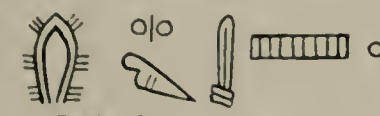
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[1] Are we to regard this *n-as* as an oblique case of the plural of *nis* (§ 65)?

[2] From a comparison of texts it would seem as though  were possibly a variant for  : cf. M ix, 5 a chief's name, 'a chief of  ': M lii, 5 *Gar-*[*a*?]*-li*(?) *ni*  where the alternative in l. 4 is *IX-a-e*: cf. xxi, 4: xxiii A, 2.

[3] Are we to read thus instead of *mi-am* on account of the 'tang' which calls attention to *mi*?

I believe the dative occurs as *ni* in the following:

(5)  : *Gar-a-li ni IX-a-e* : 'Garali, son of the Nine' (M lii, 4, also 5 (?)). In § 50 (6) *ni-ni* is probably written for *nin*.

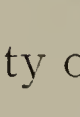
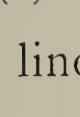
§ 66. The syntax of the genitive relationship of this word is difficult if the nominative *nis* be admitted instead of *ninis*: however, the cases given in § 50 provide certain rules.

(1) *"Arammi nin(n)-s : "-?-nili(n)nis*
(5) *"Arammi nin(n)-nis "-?-li-s*
(2) *Bauli (n)nin-as : Mutal-a-ḫ-nis*
(TA 1) *Ḫu-ni-zi nin(n)-s : Mutal-a-ḫ-s*
(6) *"Erskar nin(n)-s* : 'ally' : 'ancestors' . . .
(M xv, B, 1) [Sangaras] . . . *ni-n-s : San-gar-s*

(With (6) above compare the *ni-ni* of § 50 (6), and *"B(a)-a-mi(?) nin* : 'ally', 'ancestors', M lii, 4.)

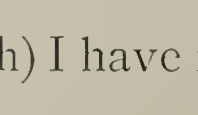
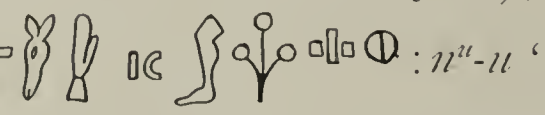
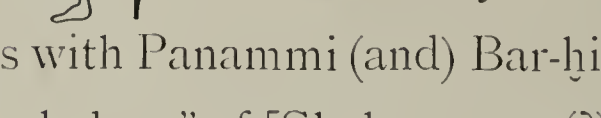
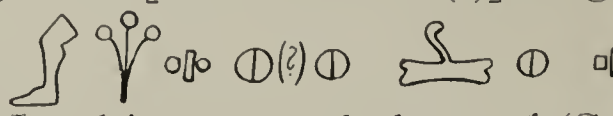
Postpositive, § 50 (3) *Niste "Bauli-nin*
(4) *Nist Bauli-nin-as*
(M xv, B, 1) *San(n)-(g)gar-s Ba(?)-ḫu-nin(n)*
(M xxxiv, A, 2) *Araranins* (cf. Professor Sayce's views, p. 129).

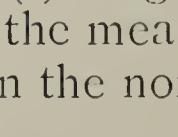
Compound, § 50 (4) 'brother'*-k-ni nin-as . . . li-s* : 'ally' : 'ancestors'.
(5) 'ally'*-k-ni nin-as : Mutal-a-ḫ-nis* : 'ally' : *-n(a)-a-s "B(a)-a-mi nin . . li-Tesuḫ* : 'ally' : *-n(a)-a nis-n(a)-a.*

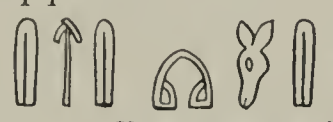
The possibility of  *nis* being a linear or conventional form of  , and the probability of the latter being a picture of a phallus and used for 'son' (discussed in § 73), must also be considered.

Under these circumstances we can either consider *nis* and *nins* (*ninnis*, &c.) to be different words, or, as far more probable, *nis* to be the same as *nins*, on the analogy of *k-s* written for *k-n-s* in M lii, 1 : xxxiii, 1, &c.[1] The dative *ni*, if the character has been read rightly, indicates that the root letters are not *nin* : moreover, *n-as* occurs twice in the place of this *ni* before *IX-a-e*, indicating probably a plural, but at any rate some form of this *nis*. If *nis* = *nins* we can easily see the accus. in *nin* and the dat. in *ni*. From the comparison of texts above, *nin(n)-s*, *nin(n)-nis*, *(n)nin-as*, *ni-n-s* appear to be the same. We apparently get *nis-e* as a plural in M ix, 4.

[1] Other possible instances of *n* assimilated before a sibilant are: cuneiform *i-ia-zi* (Y *r.* 39) by the side of *i-ia-an-zi* (Y 7, P 4), *pa-iz-zi* (for *pa-in-zi*?) (S 1, 12 : F 1, 3, &c.), *te-iz-zi* (for *te-in-zi*?) (Y 17, 23, 34, *r.* 10).

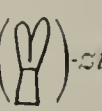
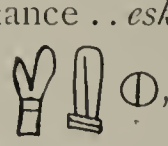
§ 67. *The noun*  . I cannot find a value for either of the two first characters; the 'leg', however, forms the name of a king in M xvi, A: xix, 1, and TA 4. But the word appears to mean 'pledges' or 'oaths', e.g. Restan 2, 'Saith . . . ?, Before the altar (?) (which) I have made, "god"-*r-e ar-k-mi*  -*t(a)* by the god(s) I swore (?) thy pledges'. (For the difficulty of connecting *ar-k-mi* with ὅρκος 'an oath' see § 88); a plural subject in a new Jerabis inscription  : *n"-u* 'ally'[1]: ?-?-*a-e* 'for the alliance pledges, &c.': M xi, 2 'the kings with Panammi (and) Bar-ḫi (§ 73)  *ID-zi* ?-?-*e* "utter (swear) the pledges" of [Shalmaneser (?)] king of Assyria' (§§ 28, 51); a new Jerabis text, So-and-so  'pledges to . . . (a chief) have given': a new Jerabis text, 'pledges of (So-and-so and So-and-so) *s-u-n* (= I (?) have written)'.

§ 68. *The noun n-m-n.* The word  *n-m-n* appears to mean 'covenant', 'agreement': it can be (1) 'written'?, (2) 'engraved', (3) 'given': (4) the words *rsmi*, *rsmu*, for which I have suggested the meaning 'join' in the other passages, can be applied to it. It is not found in the nominative:—

(1)  *n-m-n s-u-n* (M xv, B, 4) ('I (?) have written a covenant').

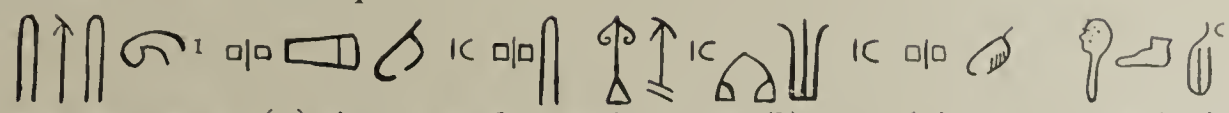
(2) . . . "*Pan-am-mi n-m-n s-u-n* (*ibid.* 3).

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[1] This is the 'hand' sign upright, without distinction of the fingers (as in § 34), the four fingers being merely indicated like a glove and not spread apart. It will be observed that these two forms rarely occur on the same inscription (cf. M. ix, 2, 3), and a comparison of texts will show that they are the same character with the same meaning 'friend'; also on M ii, the similarity of the horizontal hand ('ally') with this upright hand will be at once remarked. The form which can almost be called transitional is to be seen in M xi, 2, 'ally'  -*zi a-an-zi* 'they have counted as an ally' (or, 'in alliance'). In M ix, 3 we meet this hand three times: 'I will make sonship (§ 73) with thee "ally"-*r-s u-b(a)-r-a-t(a) nis-zi mi-t : mi :* "ally"-*u-ni ir-r-a-t(a)* "ally"-*zi-t(a) :* ?-*e-s-k mi-ni* . . ., ? will take thee as a son (in sonship) with me, our allies (alliance) will join thee, in thy alliance . . *esk* we (?) accept (?).' In M ii, 3, 4, what I at first thought was a personal name, reading it as  , must be explained as 'ally'-*e-ni* 'our allies', with an accus. 'ally'-*ni-n* in l. 6. Clearly in l. 4 we have a plural verb after it, and 'ally'-*e-ni* here is certainly not preceded by a nominative, but rather an accusative from the preceding sentence, whatever its meaning may be: and I should translate this phrase 'our allies have graven the [leg ?] of the memorial stela'. Similarly we must read 'our allies' in l. 3.

(3)  . . . *n-m-n-t-an : mi-ni a* . . . (*ibid.* A, 3) 'thy covenant we accept (?)'.

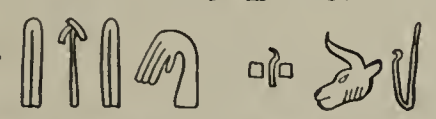
(4) 'A bowl unto Tesup



n-m-n-an a-ṭ(a)-ir : a-n kat-mi : s-un (?) *: a-b(a) Bar-k-u* (as) our agreement he hath given which I wrote (?) with Bark' (M 1). (For *un* see § 71, *note*).

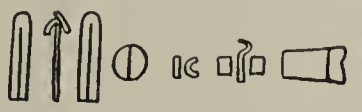
(5) § 47 (10), M iii, B, 3 *kat-mi n-m-n-an* 'engrave' *e-a Tesup-id* (?)*-r-a-ḫ-m-* 'place' 'I am engraving a covenant with Benhadad the great['s city?]'.

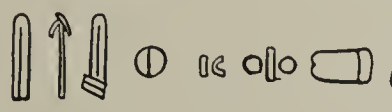
(6) (TA 5) 



. . . : *n-m-n-an r-s-mi e-a B(a)-t* : 'ally' : *ar-mi : ḫu : -mi-zi : n-m-n-an a-b(a)-t(a)* . . . 'our covenant I have joined (?), with Bat alliance I have joined; for my chiefs our covenant with thee . . . Cf. also M vii, 2 : M liii. On the meanings 'join' see notes to translation of M xxi at end.

(7) . . .  . . *u-zi : n-m-n-a-n a-b(a)-t(a)* 'for them, our covenant with thee (at my feast I have joined *t-s* : 'bowl' ;*-min-n-s*' (TA 7).

Plural (8) (M xi, 3) Certain chiefs  *n-m-n-e : a-ṭ(a)* 'have given covenants'.

(9) (M xxiii, A, 2) A chief (?)  *n-m-ni-e : a-ṭ(a)-ir* 'has given covenants'.

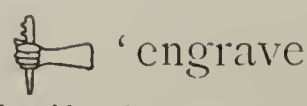
(10) (§ 47 (7)) So-and-so *n-m-n-e mi-e-a* 'covenants with me hath engraved'. Cf. also M vi, 2 : xi, 2. See § 88 for a suggested Indog. comparison.

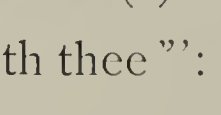
N-m-n occurs also with a word *mini* (xi, 5 : (3) above : cf. M 1), probably 'we have accepted' (§ 75).

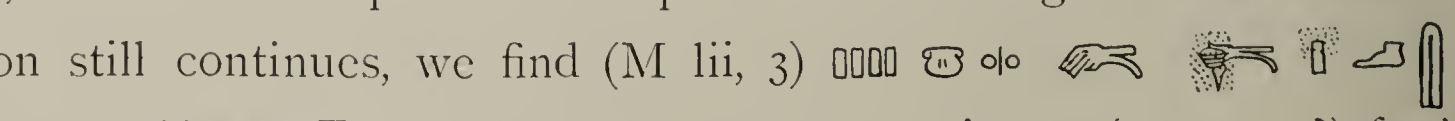
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[1]  (which is the linear form of  , as was pointed out by Sayce, *PSBA.*, xxi, 1899, 205) = *an* is proved (1) from M iii, 2, *ḫ-AN-n-s* and iv, A, 2 *ḫ-AN-nas*, varying with iv, B, 2, *ḫ-nas* : (2) M ii, 4 *m-n-u-k-n-AN a-ṭ(a)-t* 'for our memorial (?) he hath given', and *ibid.* 6 *mi-r-a-AN : t-e* 'before us he saith' : (3) the common *n-m-n-AN* 'our covenant' compared with *n-m-n-a-n* once (TA 7) ; (4) *n-m-n-t-an* 'thy covenant' (M xv, A, 3). The oath in a new Jerabis inscription with a singular subject takes the form *mi-t-m* 'god'*-ḫ-m* '(As) my great god is with me', with a plural subject becomes 'as for me and So-and-so *Tesup-s mi-t-* (if my reading is right, which seems in every way probable), i.e. *mi-t-an* '(as) Tesup is with us'.

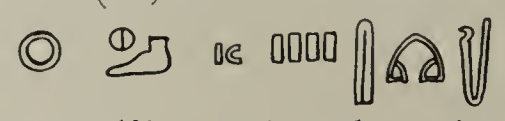
Verbs.

§ 69. *The Imperfect.* The simple verb is found in such ideograms as  'saith' (Restan 2: M lii, 3),  'engraveth' (M iii, B, 3), &c., where the subject may follow or precede. Similarly we can see this historic present in the syllabic  *t-e* 'saith'; and since the group  (§ 46) is found in similar passages, except that the subject is plural, we can see in this *-r-a* the mark of the 3rd pers. plur. of this present or imperfect.

The first person of the unaugmented tenses ends with *-u*, *-ui*, *-uu*, similar to the 1st pers. nominal suffix, and the meaning is that of a present (historic or otherwise) and future, much the same as the Hebrew imperfect. For instance, M v, 1  *te* (?)*-sau-mi ID-k-ui*[1] 'I promise I will fight': TA 3 (§ 47 (9)) *s-r-a ID: I-k-u-m: k-uu e-a-t(a)* 'They have written, "Against my (? read *u*, our ?) common foe I will go with thee"': M ix, 3  *uis-ḫ-u-t(a)* 'I will make sonship with thee'.

Moreover, the idea of this present or imperfect tense being that the duration of the action still continues, we find (M lii, 3)  *sau-r-a* 'ally' *ID-I* (?)*-k-u* 'They have made alliance against a (common ?) foe.' Hence I propose to call this unaugmented tense the imperfect.

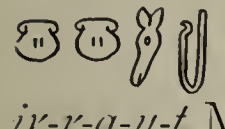
[The terminations *-u*, *-ui*, *-uu* are represented in the Hittite cuneiform in *e-eš-mi* (Y *r.* 3), *pa-i-mi* (Y 43), *ḫa-a-mi* ? (A, ii, 4).]

The second person of the imperfect may perhaps be seen in *sau(u)-s-t(a)* which occurs twice; the more probable is *kat-t(a) k-a-ui a-b(a)-u sau(u)-s-t(a)* (§ 46), 'Thou makest friends (?) with us (or, actest as our friend (?) with us)'; on a new Jerabis inscription we find  'brother'*-k-e* (or 'brother' *-e-k*) *: sau(u)-s-t(a)* (or *sau-t(a)-u-s* 'like a brother (or brothers) thou actest (or makest us)'. The difficulty lies in the various possibilities which our present ignorance will not allow of our determining.[2] [It may be that this termination is to be seen in cuneiform, *me-mi-iš-ta* A, ii, 2, 5, *ki-iš-ta-aš* (Y *r.* 17*bis*)]. I do not

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[1] Cf. *ar-mi*, translation to M xxi at end, *note*.

[2] That this form *sau(u)-s-t(a)* might have an intransitive force is possible, *sau* having all the active meaning of 'to make', 'to do'. We are too much hampered by lack of examples at present to say that this *-s-* in *sau(u)-s-t(a)* forms a middle voice, or that the form *-s-t(a)* for the 2nd person singular termination is comparable to *vid-isti* in Latin (an *s* Aorist).

think that *r-s-t* in M ix, 5 is a second person: it is more probably third person, but whether the final *-t* is a suffix or part of the verbal termination is difficult to say. For we have seen that one form of the 3rd pers. sing. of the imperfect is a simple verbal form without terminations: and it is quite doubtful whether in TA 5 *san(n)-t* or *san(n) e-a-t(a)* is meant, or if in a new Jerabis inscription 'who So-and-so (acc. (?)) *r-n-t*' where the verb is similarly doubtful (§ 83 (2)). Hence *r-s-t* is the example on which this *-t* termination depends. It is true that the forms *te-it* (Y 4, 16, 21: A, ii, 1 (?)): *pa-(a)-it* (Y 16, *r.* 10: S i, 10, &c.), *hi-i-e-it* (Y 21, 25: S i, *r.* 1 (?), 6) are common, but I cannot help thinking that these are quite as probably perfects, the augment, so clearly written in the hieroglyphs, perhaps being slurred and hardly audible to the people who wrote cuneiform. It is, of course, not infrequently added (see § 70) but the forms in *-it* without it are common, just as we find *-ir* a termination of the augmented verb in the hieroglyphs, which in cuneiform is found in such forms as *pa-a-ir*[1] (Y 22) as well as *a-ki-ir* (Y 33, 35). I must therefore leave this form *r-s-t* doubtful. The 1st pers. plur. ends like the nominal suffixes with *-n(a)*, e. g. *mi-n(a) ID-san-n(a)* (Restan 2) 'we have accepted (?), we have signed (?)', and probably  *-k-n(a)* 'we will fight' (M lii, 4).[2] The 2nd pers. plur. possibly occurs in  *r-r-u-t* in a new Jerabis inscription; this may be a form similar to *ir-r-a-u-t* M xv, B, 3 (see translation to M xxi, *notes*, at end). *Ti-in-nu-ut* (Y 20) and *ti-nu-ut* (Y 8) occur in cuneiform alongside *ti-in-nu-zi* (Y 13, 15), and *ti-nu-zi* (Y 27), but what part of speech these are is doubtful.

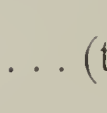
The 3rd pers. plur. is found in *-nzi* as well as the *-r-a* quoted at the beginning of this section. In M ii, 2 we find *san-n-zi t(a)-k-n ?-zi : g(k)ar san-n-zi*: 'ally': *-h-n-zi* 'they have made ... (?),[3] they have made a commemoration (?), they have made alliance'; and yet in the same inscription *t-e-r-a* 'they say' occurs in the historic present. In § 37 *mi-n-zi* 'brother'-*h-n-zi* 'they have accepted (?), they have made brotherhood' appears to be the sense. [It occurs in the unaugmented tense in cuneiform in *šu-un-na-an-zi* (D 14), *šu-un-ni-wa-an-zi* (K 4), *šu-un-ni-an-zi* (K 5), &c. See § 37.]

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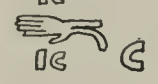
[1] I have not enough examples in the hieroglyphs to say definitely whether this *-r* sound was used in the singular in unaugmented tenses. Yet the cases *te*(?)*-r-r* M viii, 2: *te*(?)*-r-nis* (M xxxi): *te*(?)*-r* (*ibid.*): the possibility of a badly written *b* = *ir* in M iv, A, B, 2: M vi, 2: M xxxii, 1: and of the word *r-k-r* (M ii, 6: xi, 5) must not be lost sight of.

[2] A possible form with a suffix is *r-nin-n-t(a)*, TA 5, &c.

[3] Are we to see in this *san-n-zi t(a)-k-n ?zi* (or *san-n-zi-t(a) ?-k-n-zi*) either 'they have made (it) for thee ...' (or they have made it, they have ...), or, still more probably, comparing it with TA 4, 'they have made [a feast? (*takna*)]?'

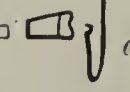
Another form of the verb appears to be in *-i*(?) for any person of the singular, and *-u* for the plural, and the verbs in these cases appear to be placed almost always (if not always) after their subject. Now the verb in Ivriz B (M xxxiv) is apparently to be read *te*(?)-*ḫi* (§ 73); in this case it follows *mi-a* 'I am' ('I am . . . Araras greeting my son'), and in this case, although the sense demands the first person singular, the verb has no distinctive mark, but remains the same as the third person impf. of § 73. It is possible that this postpositive form in *-i*, *-u* represents a participle. A similar case occurs in the plural in M xvi, A, 'We are (four kings) greeting (*or* sending a message to) (*te*(?)-*ḫi-u*, probably) the lord of Tabal', where although the sense is of the 1st pers. plur. the verb termination is *-u* (as I read it). A parallel to the plural is to be found in M ix, 2 . . . (three kings, nominative) 'ally' *;-k : ID-u* () '(are) accepting as an ally', and most probably M x, 5 (the order being due to the desire for symmetry)  *-u IX* (read *IX ID-u*) 'the Nine (are) making brotherhood': and perhaps *s-u* (M lii, 3). [An example of *-u* in Hittite cuneiform occurs in *ḫa-a-u*, Y *r*. 12.]

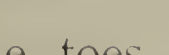
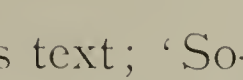
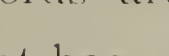
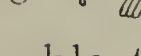
The participle used as a noun may perhaps be seen in M x, 2 *a-b*(*a*) *san*(*n*) *ID-k* '(Make brotherhood) with one making war'.

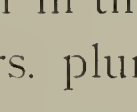
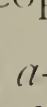
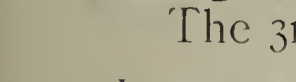
From  :'ally':*-ḫ* 'make thou alliance', the imperative would seem to have the same form as the simple root. Hence we are probably not wrong in seeing an imperative in M x, 1  *ID-san* 'make thou brotherhood'; *ib.* 8,  *a-b*(*a*) *ID : ID-k san*(*n*) 'with a foe make war' (or 1st pl.?). Hence I see in *ar-nis* 'join us' (see translation of M xxi at end).

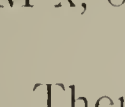
§ 70. On the other hand a distinct past tense is marked by the augment  *a*. The most frequent form is that ending in *-t* [found probably in cuneiform *a-a-an-ta* (Y 24), and *i-ga-it* (A i, 27), which seem to come from the roots  *an* and  *g*(*k*)]. Taking *ṭ*(*a*), which is the best-known root, we find[1] (new Jerabis)  [. . .] *a-ṭ*(*a*)-*t* 'bowl'; 'god'-*Tesup* . . . 'he hath given a bowl to (?) Tesup (?)' (or does *a-ṭ*(*a*)-*t* belong to a preceding word?).

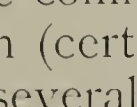
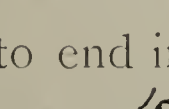
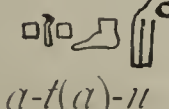
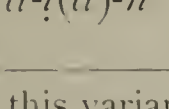
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[1] In M ii, 1 ff. we might see in  *a-ṭ*(*a*)-*t* the 3rd pers. plural with the 2nd pers. suffix *t*(*a*). 'Saith *T*(*a*)-?-*ar-s* unto his son (?) Mutallu "Thy father (and) Benhadad the great have given thee (*a-ṭ*(*a*)-*t*(*a*)) a memorial-stela (?) for the glory (?) (commemoration (?)) of Tesup" '.

Similarly  *g(k)* 'a foot', and so 'to come, to go' (according to the way in which the toes are pointing) is found in  *a-g(k)-t*, e.g. (M ix, 5)  : (name)-*ḫ : ḫ LA-a-e a-g(k)-t r-s-t ?-k-mi* 'So-and-so the Chief, the chief of the Nine(?),[1] hath come : he will join(?) our war'. *A-g(k)-t Gn-am-(zi)* 'Giammu hath come' or 'he hath come to Giammu' occurs on the Kellekli stone (Hogarth, *Annals of Arch. and Anthrop.*, ii).  *a-s-t* is another, from the root *s*, which appears to mean 'to write'. It occurs twice in a new Jerabis text; 'So-and-so  : *ID-n(a) a-s-t* . . . hath written'. Other words are  *a-am-t* (M ix, 4 *ter*), and perhaps  (TA 8). I have not been able to discover the 2nd pers. sing. or plur., but I think the 1st pers. sing. is fairly certain. Three times a word *a-ḫ-mi* occurs (M ii, 5, § 81), 'Before them a shrine (?) *a-ḫ-mi* I made' : Restan 2, *mi-*[*r*?]*-a ID a-ḫ-mi* 'before (?) the altar (?) (which) I made' : M lii, 5 : 'ally' : *a-ḫ-mi* 'I made alliance'. It seems to occur in the form *a-ḫ-m*, M xxxii, 5.

The 1st pers. plur. with the 2nd sing. suffix is concealed in  *a-san-n-t(a)* in the quotation in § 46. Had it not been for the phrase in M ix, 2 *a-b(a)-t(a) san-m-t(a)* 'with thee I will act (towards) thee', I should have suggested that my copy was in error in  *t*. Apparently we may see the 1st plur. in  *a-ṭ(a)-an*, M xxxiv, A, 2.

The 3rd plur. ends like the impf. forms in *-nzi* [in cuneiform *a-ṭa-an-zi* G 16, *a-ba-wa-an-zi*, G 20, &c.], e.g.  *a-san-n-zi* (new Jerabis) and  *a-an-zi* (M x, 6).

§ 71. There are, however, other verbal forms in this augmented tense. For instance, the common *a-san(n)* used as auxiliary :  *a-ṭ(a)* used as a 3rd pers. plur. in (certainly) two cases, one a new Jerabis inscription and the other M xi, 3 '(several chiefs) *n-m-n-e : a-ṭ(a)* : have given covenants'. (For a case with a suffix see *footnote* to § 70.) Another form for the 3rd pers. plur. appears to end in *-n* ;  *a-san-n* ('they have acted (as) friends', M lii, 5), probably  *a-k-n* 'they have come' (M xxxi, Nachtrag), and possibly  *a-ṭ(a)-n* (M xlvi) : but there is a doubt about this.

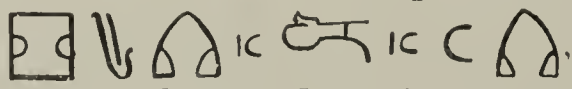
[1] On this variant see § 64, *note* 2.

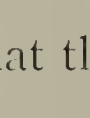
There are also the forms in *-ir* quoted in § 10, which appear to be the 3rd pers. sing.

We find a possible form in *-u-n*, occurring only as  *s-u-n* (assuming that the root is the verbal *s* 'write') (new Jerabis), 'pledges (?) of (So-and-so) *s-u-n*'; (new Jerabis and M xv, B, 3 and 4) *n-m-n s-u-n* 'I have written (?) a covenant'.

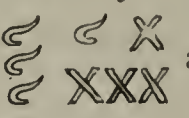
[Cuneiform shows it in (e.g.) *ṭa-aḫ-ḫu-un* (Y *r.* 4, [5]), *šu-uḫ-ḫa-aḫ-ḫu-un* (Y *r.* 6), *te-eḫ-ḫu-un* (Y *r.* 7), &c.: *pa-a-un* (W 19) shows from its parallelism with *ad-din* 'I gave' that it is 1st pers. sing.[1]]

§ 72. The *u-* forms which appear frequently in Hittite cuneiform [*up-pa-(aḫ)-ḫu-un* √*pa*, A i, 15, 28: *up-pa-aḫ-ḫi* A i, 18: *u-ṭa-an-zi*, √*ṭa*, A i, 22, &c.] occur in *u-b(a)-r-a-t(a)* (M ix, 3, see *note* to translation at end): *u-ḫa-am-mi* (M ii, 3), and probably an instance in M ix, 5.

§ 73. (*a*) We have already discussed the causative conjugation in § 37, which has shown examples of a noun ('brother', 'ally') with a *-ḫ-* verbal formation after it. One or two new points arise which are of interest. In M xxxiii, 2 we find  , and although it is difficult to be certain of the meaning of the first ideogram, I am much inclined to agree with Professor Sayce and see the idea of a 'stela' or 'tablet' in it.[2] Whether *u(a)-s* is 'this' or 'our', the last group 'ally': *-ḫ-s* appears to be a nominal form of the causative conjugation in the genitive, so that we may translate 'this tablet (?) of making alliance', or even a participle used as an adjective in the nominative.

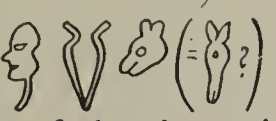
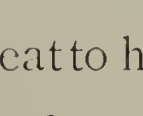
In this form of the causative we have now found (1) the hieroglyphic imperative 2nd sing., ending in *-ḫ* (are we to see this in the cuneiform *liḫḫuwai*,[3] A i, 14 ?): (2) the hieroglyphic imperfect 3rd plur., ending in *-ḫuzi*, corresponding to the *-aḫḫanzi* of the cuneiform: (3) and possibly the hieroglyphic 1st plur. of the same in *-ḫun(a)*. For the 1st and 3rd pers. sing. in the cuneiform the views in Knudtzon, *Die El-Amarna Tafeln*, p. 270 ff., are that *-ḫḫun* is the 1st pers. and *-ḫḫi* the 3rd pers. Now, in addition, I believe that the group  ,

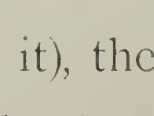
[1] This has long been accepted in the Arzawa letters. It rather suggests that  might have the value of *un* in M i 'a bowl for Tesup (as) our covenant he (?) hath given : *a-n kat-mi* : *s-* : *a-b(a) Bar-k-u* which I (have) written (?) with Bark': but the suggestion is without support. (See § 32, *note*.)

[2] At the same time in two of the passages in which it occurs it appears to be preceded by a numeral, once 'ten' and once a 'hundred', if Professor Sayce's very plausible explanation of  as '440' be correct.

[3] *Ṭa-a-i* (Y *r.* 26, 27, &c, D 11, &c., E 7, 12, &c.) has all the appearance of an imperative

a fairly common word, contains the causative termination for the 3rd pers. sing. (besides the participle, § 69), at any rate when used as the first word in a sentence, and on this assumption the second character should have the value *-li*. I submit the following to support such a theory :—

At first I thought that this character had some such value as *li* from a new Jerabis inscription, where I found a form  'brother'-?- *li-n-si* 'they have made brotherhood', when the usual form for this word is simply  'brother'-*li-n-si* (§ 37), my idea, probably erroneous, being that this apparently redundant character was a helping *li*, added to support the ordinary causal ending; and by considering it as *li* came to the conclusion that it could form a causative of the third person singular as in the word mentioned above. But latterly it seemed unlikely that the sign could only be a simple *li*, as there were already two signs for this, and in that case, if it contained the sound *li* at all it must be augmented to a full syllable by at least a vowel either in front or behind (say *i*), which at once obviously changed the (hypothetical) group 'brother'-*li*(?)-*li-n-si* into a form difficult to explain on the model of the cuneiform causatives. Yet on the ground that the value *li* made the group  -*li* into a causative of the ideograph 'say' of the form demanded by the cuneiform, it was still worth pursuing as a hypothesis. Now this group takes the place of the ordinary 'saith' (or 'I am'), as in M x, 1, and if the second character is really a causative *li*, we may well suggest 'causes to say', i. e. 'sends a message' or 'greet' for the meaning : in just the same way √*te* 'say' occurs in cuneiform (cf. Y 4, 16, 21, &c.) as well as its causative *te-eli-lu-un* (Y *r.* 7). M x, on which it occurs, (if my translation is right) was sent as a present, or at any rate marks a message from Shalmaneser (?) to Carchemish (this explains the Assyrian figures on the companion stelae). Next, on M xvi, A (see translation at end) we have 'we (four kings)  i. e. greet (or, send a message to) (the lord of Tabal)' and in the rest of the inscription they suggest an alliance. In M xix, 1 the group appears to occur again, but the text is mutilated. M xxxiii gives 'Araras of Tyana the great to his lord Talhas  *li-n-s-t*, Make alliance with us'. Here again the idea is of sending a message; while in the Ivriz text quoted at the end of § 69, 'greet' or 'send a message' will fit  quite well (see the translation at end). For M xxxv, 2 I can suggest nothing: the word also occurs in Rams. No. 4. (For the view that some of these are participles see § 69, end).

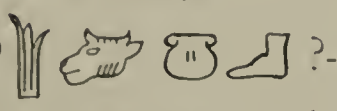
Hence there is some initial reason, at any rate, to think that our character can form *-ḫi* causatives, and, as a barely possible parallel (at least until some translation is suggested for it), the group  in M lii, 5.

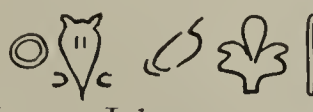
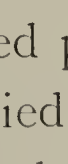
With this suggested value *ḫi* we can apply it to the phrase 'brother'-*ḫi-ḫ-n-zi*, where it is apparently redundant because of the parallel 'brother'-*ḫ-n-zi*. Obviously if *ḫi* is the value, it cannot be a helping sound in the causative formation, for the cuneiform forms are quite distinct on this point: but it might well be a phonetic complement to the sign for 'brother', which suggests at once the Assyrian word *aḫi*. As has been seen (§§ 2, 28, 33 *footnote*; for the full list see § 89) several Assyrian words were adopted in Hittite cuneiform many centuries before the date of this inscription, among them certainly *abu* 'a father', and a possible instance of *aḫu* 'brother' (see § 33, *footnote*); phonetic complements are by no means uncommon (§ 4), and consequently the evidence for the value *ḫi* accumulates with this explanation.

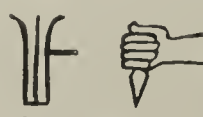
We can now examine the name of the brother of Panammi, who has already been referred to in §§ 28, 38. In § 28 we find three instances of a group  , a name following closely after Panammi, and in § 38 it is shown that he is actually described in the hieroglyphs as Panammi's brother. The two first quotations in § 28 may be translated 'Panammi the king, with R his brother' and 'Panammi (and) R swear'; and with these clues it should be possible to learn the pronunciation of his name [1].

First, we can examine the character  which occurs syllabically in another proper name *k-u* in M 1 (*kat-mi : s-un ? : a-b(a)* ID-*k* 'I have written (?) with ("tang") *ID-k*'); in M xxi, 3 where it is written -*k-u*; in M xi, 4 it is made definitely a chief's name by the sign *ḫ*, = ("tang")-ID.-*k-ḫ* = '*ID-k*, the chief'; and in M x, 2 it is one of three names of persons who are described as 'chiefs of the Nine' (*S-s-?*, 'Sun-god'-*sun*, ID-*k*). Consequently there is no doubt that we have

[1] In the long text from Tel Ahmar the name occurs in l. 8 spelt ordinarily (without Panammi); in l. 3 we find a group , which, although the lower half of the line is broken away beneath, gives at least at first sight some colour to the belief that this group is a variant ('head'-*ḫu*) for the name of the brother of Panammi ('head'-*ḫi* (?)). Against this, however, I must mention that M xv, B 1 (§ 3) contains a possibility that this name 'head'-*ḫu* is the father of Sangar, and son of another Sangar: the first character is very difficult to read, but if the line on M xv, B 1 runs as I have suggested in § 3, it would be difficult to reconcile this name 'head'-*ḫu* as the brother of Panammi. However this may be, it has, of course, no effect whatever against our reading the name of the brother of Panammi as 'head'-*ḫi*.

a chief's name spelt with  (with or without the tang marking names) and the sign *k*. We may now turn to another name which occurs in a group three times  ?-?-*b*(*a*)-*r*-*k* (TA 3, 5, M lii, 1). This form does not occur in any of the texts quoted above, and hence will not clash with their groups in any way; and I propose to suggest a hypothesis for the identification of the two groups, making  = *Bar-k*. If we could prove the first two characters in ?-?-*b*(*a*)-*r*-*k* to be a title, so that the name is really *B*(*a*)-*r*-*k*, we should have gone far to prove our point.

Now it is noticeable that M xxi and M lii, both from the same king to the same king, and about the same date, do not coincide in their mention, the one bearing one form, and the other the other. It is not improbable for two such inscriptions to mention the same chief's name, and hence these two may be the same name spelt differently; at the same time it must be admitted that Karal occurs in the one and not in the other, and hence we cannot base very much on such small evidence. But we can go further in the question of titles. In M xix, B, 8 we find part of our title used in  ID.*IX*, where ID. (if correct) replaces the more usual *li* 'chief'; are we then to consider that we have '?-title-*B*(*a*)-*r*-*k*' for our name? In relation to this we find a curious parallel in two groups, M xxxiii (Nachtrag), 6,  , and what is presumably the same in M lii, 2 (cf. 5)  (I see I have not done Messerschmidt's copies justice in drawing the sign as *li*: a new Jerabis text spells this name in the same way as M lii, 2, without *;*, but is distinct in using No. 45 of my list, and not *li* in this passage). Here it is clear that the circle may again be omitted, and it might indeed well be that it is merely the sign for 'brother' (◎ instead of ⊕, a form which I copied more than once while working at Carchemish). At any rate, whether it be 'brother' or not, it can clearly be omitted; so that whether we see in  a title, or merely 'brother' of the titled person, is immaterial for our purpose.  we have seen (if the text is copied rightly) is equivalent to 'chief' (cf. M xv, B, 1?), and hence, since the circle-sign may be added or omitted in the other group, it does not seem an improbable theory that '?-?-*b*(*a*)-*r*-*k*' provides us with the name *B*(*a*)-*r*-*k* with a description or title attached. With the probability of this name *B*(*a*)-*r*-*k*, should we not read the  as *Bar-k* (making  = *bar*), which occurs in inscriptions contemporary with those containing the form 'title-*B*(*a*)-*r*-*k*'?

For another case of  (in one case with the tongue out) compare the name (or possibly the title of an officer)  in M vi, 1, and Restan 1 (§ 9). This occurs as  in a new Jerabis inscription. I can offer no explanation except to mention in comparison the name Bar-ga'š, a chief on the Zakir-stela, of a later period (§ 23): the hand with the dagger is used phonetically in Rams. 1–6 in the king's name  *"Un*(?)-?-*tal-s*, and again phonetically with the sign *k* when it means 'to fight', but that is as far as I can go in these comparisons.

(*b*) To proceed with this head-sign. It occurs as a noun in M ii, 1, 'Saith Ṭ-?-ar-s unto his *bar*(?) Mutallu the great'. Now in the corresponding phrases (§ 34) we find the words 'brother', 'friend', 'lord' used, and hence here it looks as though *bar* had assumed an Aramaic value 'son'. This is strengthened by the next word in the line, which reads *a-b*(*a*)-*u-t*(*a*), which is surprisingly like the Semitic (be it Assyrian or Aramaic) for 'father' with 2nd pers. sing. pronoun attached; *abu* is one of the Assyrian words borrowed in Hittite cuneiform, like *pani*, and possibly *aḫu* (§ 90). It does not seem unlikely that common Aramaic words may have been borrowed (*abu* 'father', *pani* 'face',[1] *aḫu* 'brother' are practically the same as the Aramaic words) by the Hittites of the ninth century, seeing how close their relations with the Syrians were. The excavations of Sinjerli which have revealed sculptures of undenied Hittite workmanship, and yet inscriptions in Aramaic, are enough to show how interwoven these tribes on the border of the Hittite-speaking and Aramaic-speaking lands were. It cannot, however, be supposed that the head-sign *bar*(?) originally meant 'son' to the inventors of the hieroglyphs, but far more probably (as Sayce actually suggested for the pictograph) 'chief', and at the same time I am very loath to discover Aramaisms or other Semitisms in Hittite on slender evidence.

(*c*) If there be any value in the foregoing hypotheses, the name of Panammi's brother will then be *Bar-ḫi*, and without wishing to force a comparison, it is certainly a curious coincidence that one of the later-found Sinjerli Aramaic texts (von Luschan, *Ausgrabungen in Sendschirli*, iv. 374 ff., translated by Peiser, *OLZ.*, 1911, No. 12, 540 ff.), shows the following:

> 'I am Kalammu bar-Ḫayâ: Gabbar ruled over Ia'di; and Bel-pô'êl was his son. And Bel-pô'êl adopted my father Ḫayâ, and Bel-pô'êl adopted (him) as chosen brother. And Bel-pô'êl adopted me, Kalammu, as full son' (&c.).

Ḫayâ is written חיא in l. 9, and it is commonly accepted that he is the Ḫaiani of the Shalmaneser inscriptions (see the aforementioned *Ausgrabungen* and *OLZ.*

[1] Cf. the inscription of Kalammu referred to in (*c*).

on this point) who is described therein as 'son of Gabbaru'. Inasmuch as the true son of Gabbar, Bel-pô'êl, adopted him as a brother, the Assyrian description could hold good.

From the Sinjerli texts and the Assyrian inscriptions we can reconstruct a fairly accurate genealogical tree of the kings of the two adjacent kingdoms of Sam'al and Ia'di:

Sam'al.	*Ia'di.*
Gabbar (A, S.)[1]	
Ḫaiani (A.) (Ḫayâ, S.) by adoption brother of Bel-Pô'êl (S.), *c.* 860 (called 'Son of Gabbaru', A.) paid tribute to Shalmaneser, 854 B.C. (A.)	
	Ḳaral[2] (H., S.), contemp. of Benhadad, *c.* 860-845.
Kalammu bar-Ḫayâ (S.) (Bar-ḥi, ? H.) ruled subsequent to 854 B.C. [? in H. called 'brother' of]	Panammu I[3] (H., S.), contemp. of Benhadad, probably ruled about 845-815.
Bar-Ṣr (S.), son (?) of Panammu I.	
Panammu II[4] (A., S.) died in the reign of Tiglath-Pileser II, after 745 (S.).	
Bar-Rekub (S.).	Azriyau (A.), reign of Tiglath-Pileser II.

We have therefore little difficulty in making Kalammu bar-Ḫayâ of Sam'al a contemporary of Panammu I of Ia'di, and, having regard to the history of preceding kings, these latter too may very well have made brotherhood, which would be a reasonable hypothesis to strengthen my translation for the Hittite phrase 'Panammi the king with his brother Bar-ḥi'. There is nothing to prevent Kalammu having been called Bar-Ḫayâ instead of by his own name: it was no uncommon thing, for the Semites at any rate, to speak of M, the son of N, as simply 'the son of N': thus 'the son of Kish' (1 Sam. x. 11), 'the son of Jesse' (1 Sam. xx. 27, 30, 31, &c.). Even in Hittite we can point to another example, for the Ivriz inscription appears to be the record of just such another case of adoption; the larger figure who says 'I am Tesup-mis' goes on to call himself *A-r-ar-a-nin-s*, i.e. 'son of Ariarathes' (apparently a distinct name, Ariarathides, occurring thus on M xxxii, 1, not merely a description), while the smaller figure

[1] A. = occurs in Assyrian inscriptions, H. = Hittite, S. = Sinjerli.

[2] Father of Panammu I, occurring (if this system of decipherment be correct) in a Hittite inscription (M lii) sent by Benhadad to Mutallu of Gurgum (§§ 28, 87).

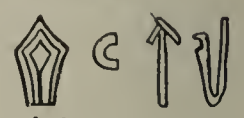
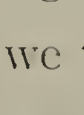
[3] Occurring in Hittite on inscriptions contemporary with Sangar (M xv, B) Irḫulîna (M vi), Muttallu (M xxi?), Katê (M ix?), Kirrî (M xi), Aram of Kask (M xi), and Benhadad (M xxi?). As Panammu II died probably not long after 745 B.C. (see the Sinjerli inscription of Bar-Rekub), Panammu I may quite well have been on the throne as early as 845. He must have been contemporary with the last years of Benhadad, who was murdered some time between 846-842.

[4] Bar-Rekub describes his ancestors as living in the palace of Kalammu.

says 'I am .. Araras (Ariarathes) sending a message to (*or* greeting) *n"-ni-mi*, i.e. my son'.[1]

An interesting suggestion comes from the hieroglyph of the 'hand grasping' in one of the 'Panammi' groups in § 28. The phrases are 'Panammi, the king, with Barḫi his brother', or even 'Panammi and Barḫi' simply: but we also find the closed hand inserted between the words 'Barḫi' and 'his brother'. Now this hand-sign occurs in a phrase (M ix, 2) 'Targu-ras, Shalmaneser(?), king of Nineveh, chief of lords, (and) Talas have accepted ('hand'+*u*) the . . . of our great lord . . . as an ally', and again in a new Jerabis inscription ('hand'; *a-sam-u-zi* 'they have accepted') (see translation at end, M ix, *notes*): and with the view that it implies 'acceptance in alliance' we can see the same meaning in it when written with Barḫi, 'his accepted (i.e. adopted) brother Bar-Ḫayâ'.

To recapitulate the evidence for the name Bar-ḫi = Bar-Hayâ. The sign which I have called *ḫi* occurs apparently as the causative termination of the verb 'to say': it also occurs as a phonetic complement to the word 'brother', which may be the borrowed Assyrian word *aḫi*. The sign which I have called *bar* is used in a proper name *Bar-k*, for which there is some reason to believe the variant *B(a)-r-k* is written in contemporaneous texts, and there is the bare possibility that this value *bar* was used in a borrowed Aramaic word 'son' (although I lay no stress on this). We find these two signs forming a personal name Bar-ḫi, who is described as the brother of Panammi, and a Sinjerli text gives us a king Kalammu bar-Ḫayâ, who is the adopted son of Bel-pô'êl, probably Panammi's grandfather, and in one case a sign which might reasonably be explained as meaning 'accepted' or 'adopted' is used in describing this Bar-ḫi. Chronology prevents us reading *Bar-k = G-bar = Gabbaru*.

To conclude this section on causatives we must mention a form  (M ix, 3) *ID-ḫ-m-t(a)* 'I will make . . . thee'. Looked at as a picture the ideogram suggests a phallus; in that case 'son' is the natural rendering. But we have already (§ 66) found that the character  *nis* = 'son'; are we to suppose that  is the full form of , which is merely its abbreviation (as was suggested in § 66), like , , for the animals' heads? This seems a possibility, for it is not uncommon to find both the full form and the abbreviated form in the same inscription (M xxi, M lii, the sign *b(a)*). The text of M ix, 2 (end) can then read 'With thee will I act: I will make sonship with thee': and this is

[1] The Hittite inscription from Kirtschoglu (M vii), not very far from Kalammu's kingdom, seems to contain the name Bar-ḫi badly written in the first line. (See translations at end.)

followed by ?-*r-s n-b(a)-r-a-t(a)* 'son'-*zi mi-t:-mi* '. . . ? will take (?) thee for a son with me'.

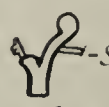
The character  occurs M xi, 3, 4 (where it may mean 'son'), and in M x, 6, where it is used after *a-an-zi*. In M ix, 4 this phrase is found thus with  : *Kat-t-e : nis-e a-an-t-nin B(a)-t nis-e a-an-t-nin* 'Katê hath counted us (?) as sons(?), Bat hath counted us (?) as sons (?)'.

§ 74. *The auxiliary verb.* As has been already noted (§ 9, *note*) the verb  can be used either simply or with an auxiliary  *san* or *a-san(n)*, which thus suggests its meaning 'make, do, act', and it will be found that these meanings suit the context where *san* is used as a verb by itself: 'like (a) brother(s) thou actest (or makest us)' (§ 76), 'thou actest (as) a friend(?) (or makest friends) with us' (§ 46), and others. In compounds, other than that quoted at the beginning of this section, we find it with , an ideograph evidently meaning 'to accept' (cf. M ix, 2), as in a new Jerabis inscr. *ID;-a-san-n-zi* 'they have accepted': with (Restan 2) 'to sign'; and in the phrase : *g(k)ar-san-n-zi* (M ii, 2) before the words 'they have made alliance', parallel to the case of *mi-n-zi* before the words 'they have made brotherhood' (new Jerabis inscription). *Mi-n-zi* we may perhaps translate 'they have accepted' (see below), and perhaps (if a comparison with an Indog. root be not out of place) we may see in *g(k)ar* the Indog. *kar-* 'to mention, praise', *g(k)ar-san-n-zi* being then 'they have made a commemoration'.[1] Similarly in M x, 5 *kat-t(a) [a]-b(a) . . .? g(k)ar-san-m*, but what its meaning is is not certain. An additional example for the meaning 'make' appears in the phrase 'let us make (*san*) war' (M x, 8).

§ 75. Since *minzi* has been referred to it may be discussed here. We find the root in *min(a)*, *mini*, *minzi*, e.g. (new Jerabis inscription after a plur. subject)

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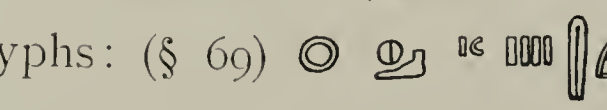
[1] It is a fitting place here to discuss the meaning of  *gar(kar)* (§ 3 ff.); besides occurring in *Sangar*, *Gargamis*, *Garali*, *Garsans* (?), &c., and with *san*, as above, we find it in (1) M ii, 2 'Thy father (?) (and) Benhadad, the great, have given thee a memorial-stela for the *kar* of Tesup'; (2) M ix, 5 'A great tablet (?) of our *kar ir-r-a k* . . . (i.e. they have joined)'. Now this can either be referred to the *kar* 'commemoration' mentioned above, or we can consider it as equivalent to the Assyrian *karu*, supposed to be the Kar or Gar in Gargamis, 'a fortress', 'wall'. I incline to the former, 'the commemoration (praise) of Tesup' being indicated by his figure beside the inscription, 'the great tablet (?) of our commemoration' being the actual inscription on which the covenant was written. (On the meaning of the sign 'tablet' see § 73, *a*.)

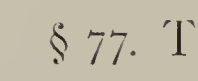
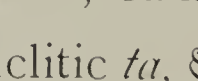
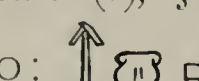
mi-n-zi 'brother'-*ḫ-n-zi* 'they have *mi*, they have made brotherhood': (Restan 2, after a suggestion for alliance) *mi-n(a)*  -*san-n(a)* 'We have *mi*, we have signed'; and in the form *mini* (although whether it is a participle (§ 69) or a form of the 1st pers. plur. impf. is uncertain) in (M xi, 5) *n-m-n K-r-a-ḫ : mi-ni* 'the covenant of Kirrî, the chief *mini*': (M 1) *s-c : n-m-n-c NN : mi-ni* 'the writing of the covenants of NN *mini*': (M xv, A, 3) *n-m-n-t-an : mi-ni* 'thy covenant *mini*'. Possibly the perfect is found in M lii, 2 *a-mi*.

Now in the above cases everything points to *mi* meaning 'to accept': it is a stronger meaning than 'to consider', 'to see' (as I first thought, comparing the Indog. *men*, by supposing the *n* to be hidden in the termination), for the whole point of these inscriptions seems to me to be the indication of a definite intention to become an ally, and not merely the consideration of such a course. Hence 'accept' seems to be the best translation, at any rate provisionally.

The Prepositions, &c.

§ 76. *The particle* K(KI).

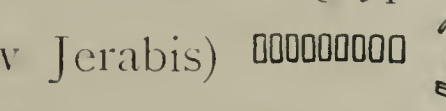
In the Hittite cuneiform we find an enclitic *ki* occurring thus: (the last paragraph of A ii) *AB . ZUN*[*k*]*u-c u-ṭa-an-zi nu ne-c*[*š-r*]*a-ni b*[*u*]*-ḳa ḫa-at-ri-eš-ki*: (Y 19) *u-ul ku-it-ki* (*ku-it* occurring separately Y *r.* 8). This occurs in the hieroglyphs: (§ 69)  , 'brother'-*k-c : san(n)-s-t(a)* 'like (a) brother(s) thou actest' (or *san-t(a)-n-s* 'thou makest us'?) (or possibly the *-c* marks the case-ending of 'brother'): perhaps M ix, 1 'god'-*ḫ k* 'like a great god' (see translation of M ix at end, *note* to l. 1): *ibid.* l. 2, 'ally';-*k* 'like a friend'. Cf. M lii, 4, where *k* occurs obviously between two words (probably a noun) of which it is not a part.

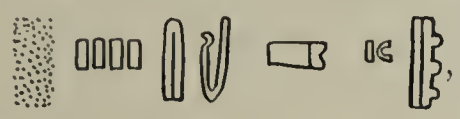
§ 77. The prepositions are:  *a-b(a)* 'with', cun. *a-ba*, § 40:  *mi-t* 'with', cun. *ma-at*(?), § 81:  *e-a* 'with', cun. *i-a*, § 47:  *t(a)-a* 'to', cun. enclitic *ta*, § 80: *mi-r-a* 'before', § 81: *n-u* (see trans. to M xv, B, l. 2), the equivalent of the cuneiform *nu*, § 7.

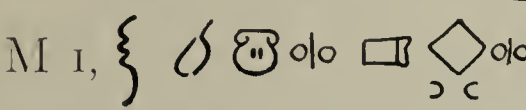
Enclitic:— *k-n* 'for', 'to', cun. *kan*, § 7: *n-ṭ(a)* 'to', cun. *-an-ṭa*, § 79: *z i* 'in', 'for', cun. *zi*, *za*, § 37, *note*.

§ 78. Enclitic *ṭ(a)* occurs as distinct from *n-ṭ(a)*, and as these are

paralleled in the cuneiform it is fairly easy to see the difference between them. The former occurs in hieroglyphs thus:

(1) (New Jerabis)  *LX e-a-mi-ṭ(a)* (the word which follows is distinct and well known) 'the Nine with me *-ṭa*'.

(2) TA 7  , &c. . . *san(n)-t(a)-ṭ(a) : ID*

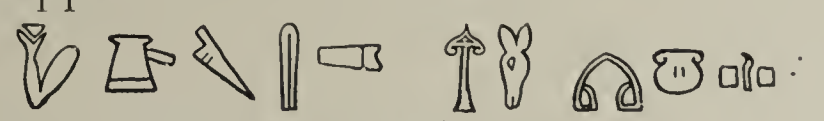
(On M 1,  &c. *Te*(?) *Ir-r-a ṭ(a) gu;a*, Irra being marked as a proper name with a tang in M xxiii, A, 2, see translation at end.)

A remarkable instance occurs in cuneiform (G 15) *II ub-na ŠE . GAN it-ti-in-nu-ṭa im-mi-ia-an-zi*. Now there is no question that *i-id-din-wa* (Y 21) and *ad-din* (W 19, *bis*) have all the appearance of the Assyrian word for 'he, I gave'; similarly *it-ti-in-nu* might well be 'they gave'; and inasmuch as *immianzi* is also a verb in the 3rd pers. plur. it seems likely that *-ṭa* is 'and' (if Indog. comparisons are permissible I would suggest *dê*, the Greek δέ). Another example occurs in P 9, . . . *a-bi-e-ṭa ub-be GISAL*, where *abî* might be the Assyrian word for 'father', and *ṭa* has been attached to it. Y *r.* 18 offers a possible example of a verb+*ṭa*, i.e. *ṭaḫ-ḫu-ṭa*(?), *ṭaḫḫu* being part of the well-known causative conj. of *ṭa* 'to give'.

Now we have two examples in the hieroglyphs where the *-ṭ(a)* occurs; in (1) after a pronoun, and in (2) after a verb, which may fittingly be compared to the *ṭa* 'and' of the cuneiform.

It is, however, no uncommon thing to find 'and' left out in the hieroglyphs in a composite subject: M ii, 1 ('thy father (?) (and) Benhadad'): TA 4 (two personal names unconnected): M ix, 2 ('Targu-r(a)s, Shalmaneser (?), king of Nineveh, lord of chiefs, Tal(a)s'): M xi, 2 ('Panammi (and) Barḫi have sworn'): M xvi (four kings unconnected).

§ 79. The *-ṭa* 'and' is probably distinct from *-an-ṭa* in cuneiform, which appears to be an enclitic preposition, notably in the greeting A i, 5, where it is added to *-kan*, i.e. *KUR . KUR . ZUN-mi-kan-an-ṭa ḫûman DMḲ-in*, while in the corresponding phrase in l. 10 we have simply *KUR . ZUN-ti ḫûman DMḲ-in e-eš-tu*. Cf. G 6 *i-na bît AMEL . ZU-an-ṭa bi-e-ḫu-ṭa-an-zi*: Y 39 *GAL-ri-ia-an-ṭa*: *EGIR-an-ṭa* A i, 18: *ki-na-an-ṭa* (Y *r.* 33) varying (?) with *ki-na-a-an-ta* (Y *r.* 23): *a-ra-aḫ-za-an-ṭa* A ii, 19: *LUGAL-an-ṭa* Liv. i, 8, &c. The one case in the hieroglyphs of which I know appears to mean 'to':—

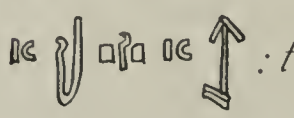
(New Jerabis inscription)  *"Mut*(?)*-tal-li-n-ṭ(a) kat-u s-r-a* 'Unto Muttallu (?) they have written'.

§ 80. *The preposition* TA.

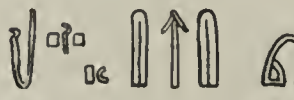
In the Hittite cuneiform there is a postpositive preposition *-ta*, e.g. B 11 *LUGAL-i-ta* : cf. *u-nu-wa-an-ta* Y *r.* 34 compared with *u-nu-te-eš*, *ib.* 27 : DMḲ-*an-ta* A i, 16, unless these belong to the preceding section. This is found in the hieroglyphs, sometimes before, sometimes after its noun.

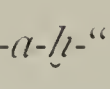
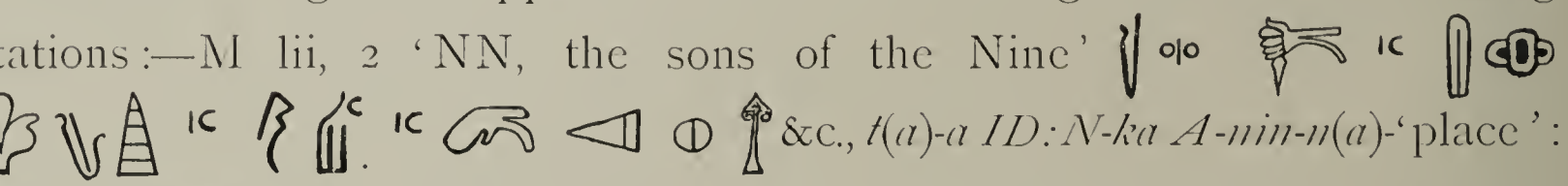
 *t(a)-a kat-n-s :* (new Jerabis).

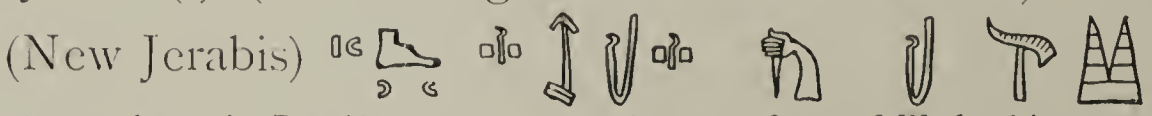
 *t(a)-a n-e* 'unto us'? (new Jerabis).

 *: t(a)-a:mi* 'unto me' (M viii, A, 2).

 *: t(a)-a-n :* 'to them' (M xxxii, 1).

 *t(a)-a : n-m-n s-u-n :* (or should this *t(a)-a* govern a preceding noun?) (new Jerabis).

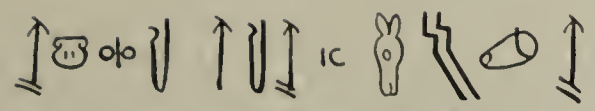
It is postpositive in the Hamath inscriptions (M [iii, B], iv, A, iv, B) 'Saith Irḫulîna unto the nobles of the king, Make alliance with us *Am-ṭ(a)-a-ḫ-*"place"-  *-t(a)-a*'; and Restan and Hamath, M vi, 'Saith  *-s* unto Irḫulîna, Make alliance with us *Am-ṭ(a)-a-ḫ-*"place"-  *-t(a)-a*'. Now as this stands, according to our meanings of the words, it can only read '*ta* the lord of Hamath, the Great', and its actual sense is not easy to see, unless it be 'for (on behalf of)'. At the same time 'against' appears to be the meaning in the two following quotations:—M lii, 2 'NN, the sons of the Nine'  &c., *t(a)-a ID:N-ka A-min-n(a)-*'place': *nis-n* : 'ally' *ar-e*[*-kat*(?)] 'against a foe of Nka of Adinnu (?) their son, alliance have joined (?)' (one reading; see translation at end). Cf. also l. 4.

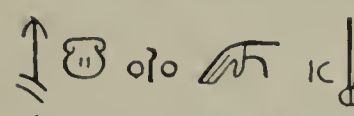
(New Jerabis)  : *K;-a-mi t(a)-a ID T(a)-bal-*'place' 'I will march against a foe of Tabal'.

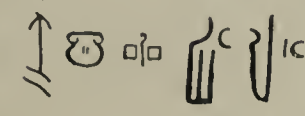
(Other cases of *t(a)-a* occur M vi, 2 : xxiv, B, 2 : xxxiii, 2.)

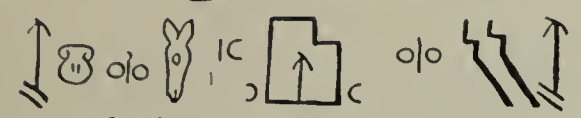
§ 81. The preposition *mi-r-a* seems to mean 'before', 'in the presence of' (the cuneiform *mi-ra-a* in W 19 is apparently a place-name). We find almost every personal suffix attached to it: *mirami*, *mirat(a)* (?), *miran*, *miraut*, *miran*.

(1) *:kat-s mi-r-a-mi* 'he in my presence' (M viii, A, 4).

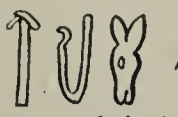
(2)  *mi-r-a-t(a) m-t-mi : u-ḫ-am-mi* : (M ii, 3) 'before thee with me he hath . . . me'. (See, however, translation at end.)

(3)  *mi-r-a-am : t-e* 'in our presence he hath said' (*ib.* 6).

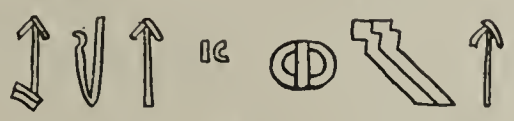
(4)  *mi-r-a-u-t* : 'before you', apparently in M xxxii, 5.

(5)  *mi-r-a-u : ID; a-ḫ-mi* 'in their presence the shrine (?) I enlarged (built) (?)' (M ii, 5).

It is used obviously with this meaning in M xi, 4, 'Sweareth Aram, the chief of Kask, *mi-r-a* 'god'-*ḫ* before the (or his) great god'. Cf. also, for another instance, M vi, 2.

Mira 'before' is therefore fairly certain. We can proceed next to another proposition *m-t*, which is not improbably the same as the *ma-at* of W 19 (*nu* mât ali êlî-ti *niš-ta-bar-ḫa ti-ra-an ma-at-mu* $^{m\ ilu}$*Sin-*^{ilu}*Tesuḫ-aš*, &c.). One instance of *m-t-mi* 'with me' has already been given (see this section (2)): it occurs again M ii, 4 (*m-t-mi m-n-u-k-n-an a-ḫ(a)-t* 'with me for our stela (?) he hath given'). An instance of the 3rd pers. pl. is M xv, 2  *m-t-u* 'with them'.

From *m-t* we may proceed to a form *mi-t* which seems to be merely a fuller form of *m-t*. In consequence of the existence of a root *mi* in the verbal forms *min(a)*, *mini*, *minzi* (§ 75), *mi-t* in some of its occurrences had the appearance of a verb, but this was undeniably opposed by the almost certain absence of the existence of an impf. 3rd sing. form in *-t*, and I am compelled to relinquish this view.

The following examples make its use as a preposition certain: (M ix, 3, see translation at end) *nis-ḫ-m-t(a) : ?-r-s u-b(a)-r-a-t(a) nis-zi mi-t : -mi* 'I will make sonship with thee; . . .? will take thee for a son with me.' A form of oath (new Jerabis inscription)  *mi-t-m* : 'god'-*ḫ-m* '(As) my great god is with me' varies with  *m-t-m* 'god'-*ḫ-m-n* (cf. M xxi, 4) (in the case of a plural subject a new Jerabis inscription gives 'As for me and So-and-so, "god"-*Tesuḫ-s mi-t-an* (?, nearly certain) (As) Tesup is with us'). In M ii *m-t* of ll. 3, 4 apparently varies with *mi-t* as in l. 6 : ? ; ? *mi-t* : *Aḫu*(?)-*nis-ḫ-k-n* : *mi-r-a-an* : *t-e* 'So-and-so with Aḫuni(?) the chief in our presence hath said'. Other instances of *mi-t* 'with' are to be seen in M lii, 3 *bis*, and presumably M iii, B, iv, A, B *mi-t* 'place' ;-*e* : M v, 3.[1]

[1] A perplexing group which occurs three times is *t(a)-a mi-t* in the following passages: M vii, 1 'Saith . . Make alliance with us (the *b(a)* of *b(a)-a* is omitted) *t(a)-a mi-t Bar-ḫi* (§ 73) "brother"-*nas*' ;

§ 82. *The termination -r, ri.*

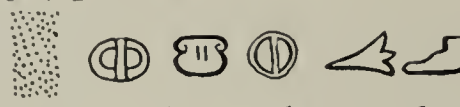
In the cuneiform several nouns are given the ending *-ri*. These occur in—

(1) Z i, 4 : *ḫal-zi-ia-ri ŠUM-kan GAL-ZUN aš-ša* .... *Ḫal-za* is well known from A ii, 15 (*ḫal-za-a-i-na-an*), C i, 16 (*ḫal-za-i-kiš*(?)), Y 38 (*ḫal-za-iš*), Y 27, 29.

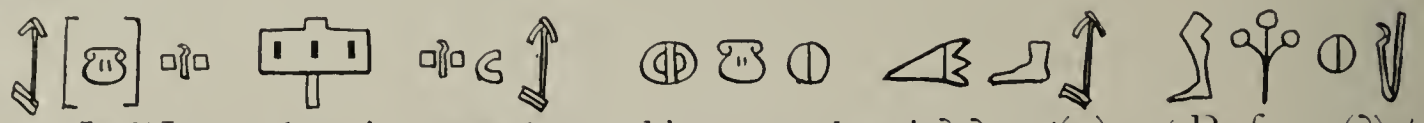
(2) *Ibid.* 12 : *ta-aš* alu-*ri-an-ṭa-an uš-ru* (?) ....

(3) Y 35: . . . *-ši ḫu-u-ma-an-te-eš a-ki-ir mu-me ki-i-ni GAL-ri* . . .

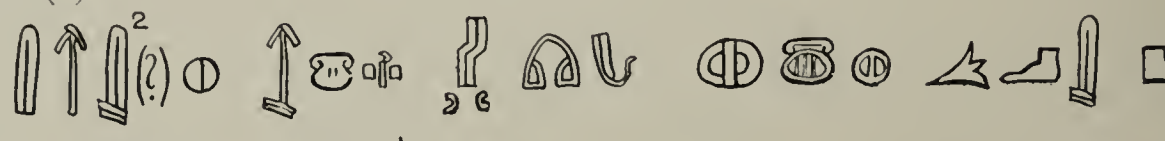
In the hieroglyphs we find—

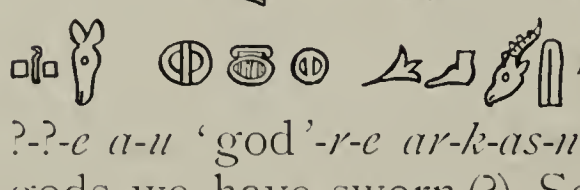
(4) M v, 1 :  'god'-*r-e ar-k Ir*(?)'-*r-a* 'Irra (?) hath sworn (?) by the gods'.

(5) Restan 2



mi-[*r*(?)]-*a* 'altar' *a-ḫ-mi* 'god'-*r-e ar-k-mi* ?-?-*e-t*(*a*). 'Before (?) the altar (?) (which (?)) I have made, by the gods I have sworn (?) thy pledges (?)'.

(6) M vi, 2 : 

 *n-m-ni*(?)*-e mi-r-a Ḫ;-s-n*(*a*) 'god'-*r-e ar-k-ni* ?-?-*e a-u* 'god'-*r-e ar-k-as-n*[3] 'covenants before his (?) chief(s) by the gods we have sworn (?), So-and-so who by the gods swore (?)[4] unto us' . . .[5] (see translation at end).

§ 83. *The word*  *a-u.*

In Hittite cuneiform in one passage (A i, 12) we find a word *a-u*. The quotation runs *ka-a-aš-ma-at-ta u-i-e-nu-un* ^{m}*Ir-ša-ap-pa* ^{am}*ḫa-lu-ga-tal-la-an-mi-in a-u ma-ni DÚ-SAL-ti AN. UD-mi ku-in DAM-an-ni u-wa-ṭa-an-zi* '. . . . Irsappa my messenger *a-u* (i.e. to whom) our lady thy daughter, the gift for my Sun-god,

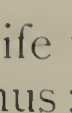
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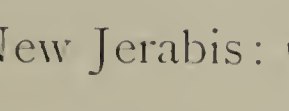
M xxxiii, 2 (see translation to M ix at end, *notes*) *te*(?) *s-e-t*(*a*) : *t*(*a*)*-a* : *mi-t* : 'wood'; ^{u}*Ṭ*(*a*)*-a-nas*; and in a new Jerabis inscr. *t*(*a*)*-a mi-t-k-n*. Are we to regard it as a compound 'regarding, for, on behalf of'? In the last case it is possible to see in *mi-t* the reading *mi-t*(*a*) 'with thee', and as is shown above (M ii, 6) *mi-t . . k-n* is a proper compound like *nu-mu-kan*; but at the same time the existence of the word *t-k-n* must not be forgotten (see translation of M ii, *notes* at end).

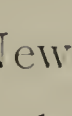
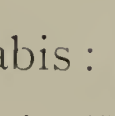
[1] I have suggested *ir* instead of the text-reading of *as* (the ibex head) which is close to a break in the stone: *as-r-a* is unintelligible to me, while *Ir-r-a* is a known name. But this is very doubtful.

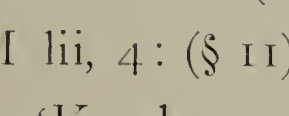
[2] Text has  . [3] Transpose and read *ar-k-n-as*. [4] On this word *ar-k* see § 88.

[5] Are we to add here the terminations in *-r*, i. e. *Ir-ḫu-*(?)*li-ni-r* M xxiii, 3: 'enemy'-*a-ar* TA 5?

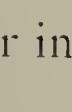
as (his) wife they give.' We find a word  *a-u* in similar passages in hieroglyphs, thus:

(1) New Jerabis:  *a-u r-s-zi-t(a)*: 'who join(?) thee'.

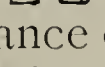
(2) New Jerabis:  (name)  *a-u (N): r-n-t(a)* 'who (So-and-so) has . . . .' (See § 69.)

(3) M lii, 4: (§ 11) *: Gar-a-li, ni IX-a-e*  *: a-u : N-ka . . .* 'Karal, son of the Nine, who Nks . . .'.

(4) M vi, 2: . . . . 'covenants before his (?) chief(s) by the gods (?) we have sworn (?): (a chief's name) *a-u* "god"*-r-e ar-k-n-as* (So-and-so) who by the gods swore (?) unto us.' (See § 82 (6).)

Other instances are M xi, 5: perhaps xix, 4. Possibly  *a-n* in M i may be the accusative or the neuter. The translation appears to be 'who', 'which', the relative pronoun.

Syntax.

§ 84. The nominative sing. ends in  *s*, but it is not uncommon to find proper names which do not. For an instance of the nominative *-s* in the subject of a verb, cf. *san-s* in *"Pan-mi san-s* M ix, 1, but it is easier to find proper names rather than common marked with the nominative sign, e.g. *Irḫulinas* (§ 9); the name in M ii, 1, &c. The accusative sing. in  *n* is used after a verb, i. e. M ii, 4, § 64: the pl. in *-an* 'Saith Irḫulîna unto *ḫu : -an san-s* the nobles of the king' (§ 52).

The genitive relationship is expressed:—

(1) By the mere juxtaposition of the two nouns, when they are proper names, e.g. *Mu-tal Gu-gu-'m* 'Mutallu of Gurgum' (§ 31); *Sul*(?)*-man*(?) *san As-r-a-*'place' 'Shalmaneser (?) king of Assyria' (§ 51); *Ar-am ḫ K-as-k* 'Arame, chief of Kaški' (§ 35), *K-a-u-a-u-t Kat-t-e* 'the Ḳauai of Katê' (§ 60). [So also in cuneiform even when not proper names: *NI-an SAG . DU-ši* 'oil for her head' (A i, 14): ? *ku-ša-ta DU . SAL-ti* 'for thy daughter's dowry (?)' (A i, 22)].

(2) On the other hand the dependent noun may precede, e. g. 'place'*-Ma* 'Lord of countries' (§ 44), *"San*(*n*)*-*(*g*)*gar-s Bar*(?)*-ḫu nin*(*n*) 'Sangar, son of Barḫu (?)' (§ 3). Cf. § 66. [In cuneiform *AN . UD-mi ku-in* 'the gift of my Sun-god'? § 83.]

(3) The dependent noun may precede with the mark of the genitive case, e.g. 'god'-*Tesup-s : kar-k-n* 'for the memorial (?) of Tesup' (§ 64); 'engrave'-*r-a m-n-u-s*: 'leg'-*n* 'they have graven the leg (?) of the memorial (?)' (§ 64).

(4) The dependent noun may follow in the genitive, e.g. *ḫu : -an sam-s* 'the nobles of the king' (§ 52).

(5) The complicated system in § 66, to which the examples of M ii, 3 must be added: *Am-*[*r*]*-a-s : ID ; -nin : ID ; -s : Am-r-a-s : ID ; -nin*(*n*) *: ID ; -s : Am-r-a-s : ID ; -nin*(*n*) *: ID ; -s*, &c.

§ 85. *The order of words in a sentence.*

The subject of the sentence—

(1) May precede the verb: *Am-r-a-s* 'engrave' *k-n-li-s*, &c., 'Amras hath engraved . . .' (M ii, 5): *kat-mi n-m-n-an* 'engrave' *e-a Tesup-id*(?)*-r-a-ḫ-m-*'place', 'I have engraved our covenant with Benhadad the Great('s city ?)' (M iii, B, 3): *kat-s : ḫat*(?)*-ni-n t-e* 'He saith unto (our ?) alliance (?)' (M ii, 6): *Kat-t-e : nis-e a-an-t-nin* (M ix, 4).

(2) May follow the verb: *te*(?)*-san ḫu : -an san-s* "*Ir-ḫu-li-n*(*a*)*-s* 'Saith Irḫulîna unto the nobles of the king' (§ 52). This is most common in the opening phrase of inscriptions.

(3) Participles (if participles they be) are preceded by their subject (§ 69): a case of a participle used as a noun occurs in M x, 2 (§ 69).

(4) Imperatives may go at the end of the sentence (? § 69), or at the beginning, cf. M x, 1, 'make brotherhood' (and the causal imperative, § 37).

The finite verb frequently is put at the end of a sentence: *a-b*(*a*)*-u-t*(*a*) *Tesup-id* (?)*-r-a-ḫ-s* 'god'-*Tesup-s : kar-k-n : m-ni-u a-ṭ*(*a*)*-t*(*a*), 'Thy father (?) (and) Benhadad the Great for the glory (?) of the god Tesup have given thee a memorial (?)' (M ii, 1); or the object may be put at the end, following the verb: 'god'-*r-e ar-k-mi* ?-?-*e-t*(*a*) 'by the god(s) I have sworn (?) thy pledges (?)' (Restan 2).

The adjective follows the noun: 'god'-*ḫ* 'great god' (M xi, 4), 'we are one speech' (§ 61), 'My great god' is 'god'-*ḫ-m* (§ 81).

Adjectives are formed from nouns by the addition of *-nas*: e.g. in Hittite cuneiform (as Professor Sayce pointed out) *an-ṕ*[*a. .*] *ḫa-at-ta-an-na-aš LUGAL-uš* (A ii, 15), which may mean 'the Hittite king', if the adjective be allowed to precede its noun. In hieroglyphs I have found it in M xxxiii, 3 'wood'; "*Ỉ*(*a*)*-a-nas* 'Tyanian wood'.

The verb 'to say' may be used either with an accusative directly following it, as in M iii, B, 1, or the subject may follow and then the object marked by the enclitic preposition *k-n* (as in M xxi, 1).

§ 86. Scheme of Verbs in the Hieroglyphs. (See § 69.)

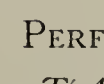
Imperfect Tense.

	Person	Ending	
Singular	3	—	*T-E* 'he saith': *SAN* 'he maketh' *AR-K* 'he swore'.
	2	*-s-t(a)*	*SAN-s-t(a)* 'thou shalt act'.
	1	*-u, -mi, mu*	*SAN-u* 'I will make':  *-K-m(i)* 'I will fight': *K-mu* 'I will go': *AR-K-mi* 'I have sworn': *AR-mi* 'I have joined'.
Plural	3 (*a*)	*-r-a*	*T-E-r-a* 'they say': *SAN-r-a* 'they have made': *S-r-a* 'they write'.
	3 (*b*)	*-n-zi(-zi)*	*MI-n-zi* 'they have accepted (?)': *SAN-(n)-zi* 'they have made'.
	2	*-u-t* (?)	[*R-r-u-t*].
	1	*-n(a), -mi*(?), *-n*	*MI-n(a)* 'we have accepted (?)': (*ID*)-*SAN-n(a)* 'we will make...': probably *ID-K-n(a)* 'we will fight': *AR-K-ni* 'we have sworn'? (§ 82): *SAN-n* 'let us make' (M x, 8 (?) : lii, 5).

Imperative.

Singular	2	—	*SAN* 'do thou make'.

Participle (?).

Singular		*-i*	(*TE*(?)-*ḫi* 'greeting', see Causatives).
Plural		*-u*	 *-u* 'accepting' (?): *S-u* (?) 'writing' (?).

Perfect Tense (see § 70).

Singular	3 (*a*)	*-t*	*a-Ṭ*(*A*)*-t* 'he gave': *a-K-t* 'he came': *a-S-t* 'he wrote' (?): *a-AN-t* 'he set' (?).
	3 (*b* (?))	*-ir*	*a-Ṭ*(*A*)*-ir* (see § 10).
	2		Not found.
	1	*-mi*	*a-Ḫ-mi* 'I made'.
Plural	3 (*a*)	*-n-zi*	(*ID*)*-a-SAN-n-zi* 'they have accepted': *a-AN-zi* 'they set (?)'
	3 (*b*)	—	*a-Ṭ*(*A*) 'they gave'.
	2		Not found.
	1	[*n*, see suffixed forms]	

Suffixed Forms (see § 58).

Imperfect. *SAN-m-t(a)* 'I will make with thee': *r-min-n-t(a)* (TA 5) : *r-s-zi-t(a)* (§ 83).

Perfect. *a-AN-t:-mi* 'he hath set me': *a-SAN-n-t(a)* (§ 46 (3)).

The Causative Conjugation (§§ 37, 69, 73).

The following forms exist: *impf. TE*(?)*-ḫi* 'he greets' (or 'sends a message'): 'brother'*-ḫ-n-zi* 'they have made brotherhood', : 'ally' :*-ḫ-n-zi* 'they have made alliance': *ma-*  *-B-R-ḫ-n-zi* 'they have made  *-b-r*' (? perfect augmented): *nis-ḫ-m-t(a)* 'I will make sonship with thee'. *Imper.* : 'ally' :*-ḫ* 'make alliance': verbal noun :'ally' : *-ḫ-s* 'making alliance': participles *TE*(?)*-ḫi, TE*(?)*-ḫi-u*(?).

The Historical Bearing of the published Hieroglyphic Inscriptions.

§ 87. Thanks to the kindness of the Trustees of the British Museum, as I stated in § 1, I have been able to draw much of the preceding material for my decipherment of Hittite from sources which were available to few, the inscriptions found at Carchemish in 1911 when I was there. Whether my system is correct or not is for others to decide; I must reiterate my indebtedness to Professor Sayce's pioneer discovery of the name Tyana, but thenceforward our respective methods of decipherment and translation coincide in few points other than those given in the note to § 1. The proof of a decipherment of this kind depends in a great measure on the power which it affords to read and identify well-known proper names, and once a number of such names have been identified, such as occur in the same period, by the use of the same values for the characters in each case, the correctness of the method is in a fair way to be established. In this article I have put forward a system which identifies in the inscriptions already published the personal names of '*Aram*, chief of *Kask*' (§§ 24, 30, 35), *Araras* (= Ariarathes, § 12), *Guam* (= Giammu, § 29), *Ḫunu* (= Aḫunu, § 12), *Ḳaral* (§ 11), *K'ra* (= Kirrî, §§ 27, 35), probably *Lalli* (§ 50 (6)), and possibly *Shalmaneser* (§ 55); *Targašnalli* (§ 11), and the place-names *Ams* (= Homs? translation of M iv, A, at end), *Amṭ(a)* (= Hamath, § 16), *Aminna* (= Adinnu?, § 80), *Asir*, *Asra* (= Assyria, § 51), *Basḫar* (= Til-Bašerê?, § 55), *Gugum* (= Gurgum, § 29), *M(w)tr* (= Pitru?, translation to M xii, 2, at end), *Nimmi* (= Nineveh, § 51), *Nram* (= Naharaim?, translation of TA, at end), *Ta* (the country of the Tai tribe?, translation of M xxxii, 2, at end), *Tabal* (§ 44), *Umḳ* (= Amḳ, § 52), and the tribal name *Katnaut* (the Ḳatnai, § 60). But still more important is the occurrence together on one unpublished inscription of many well-known names (several of which I have also identified elsewhere): *Sangar* (§ 3), *Carchemish* (§ 4), *Arḫulini* (§ 9 ff.), '*Panammi* (§ 28), the king with *Bar-ḫi* (= Bar-Ḫayâ, § 73) his brother', *Muttallu* (§ 31), *Kâk* (= Assyr. Kâki, Kakia, § 7, *note*, § 24), *Nimmi* (§ 49), 'the tribe *Kauaut* of *Katti*' (= the Ḳauai of Katê, §§ 27, 60), *Benhadad* (§ 33, *note*), and the place-name *Mizir* (Muzri, § 37, *note*), which will go far, I hope, to prove my thesis. The syllabic values thus deciphered allow of our transliterating the inscriptions correctly, and of obtaining at least the base for a moderate and sensible idea of their meaning from the various clues afforded to us.

In the following short section on the historical interest of the published Hittite inscriptions, in accordance with the Trustees' wishes, I am omitting all reference to the connected historical contents of the new inscriptions of 1911 (which are the latest which I have seen), and particularly the long text, which,

as I venture to judge even from my meagre translations, will on publication be seen to throw a flood of light on the history of this period.

In the case of the published inscriptions with which we are now concerned, I shall assume, for this section at least, that my translations are moderately correct.

Hitherto in dealing with the period of the ninth century B.C. we have been able to draw our information from Assyrian or Hebrew sources, with sparse notices from the Aramaic inscriptions; we can now for the first time see the Hittite point of view, and realize something of their political necessities and diplomatic methods. The phrase 'Make alliance with us', which occurs about a score of times in the hieroglyphic inscriptions, allows us at once to infer that the majority of published Hittite texts relate to the making of defensive or offensive alliances. Certain it is from history that the Hittites and Syrians were accustomed to make treaties both with foreign nations and amongst themselves: we have only to read the Egyptian, Assyrian, Aramaic, and Hebrew records to recognize this custom. Moreover, the kings were wont to adopt or make brotherhood with one another, as Bel-pô'êl did with Ḫayâ, and it is quite probable that the elaborate hieroglyph of two men crossing arms (No. 68 of my list, which is shortened elsewhere to the form No. 82) represents the act of making blood-brotherhood by opening a vein in the arm of each and allowing the blood to mingle. The treaty of Kheta-sar and Rameses II in the fourteenth century is a good instance of an alliance: Shalmaneser, too, in the ninth century mentions by name the different chiefs who ally themselves against him; Benhadad's 'leagues' are well known from the Old Testament and the Assyrian texts; and Zakir in his stele quoted in the note to § 23 names the kings who join 'Bar-Hadad, the son of Hazael' in war against him. Consequently we can approach the question of treaty-making by the Hittites on their stelae with some prior acquaintance with their customs.

In the hieroglyphic texts, when a Hittite king sought alliance, he would begin his inscription with a direct invitation:—'Saith Benhadad unto his brother Mutallu the great, of Gurgum the great', suggesting bluntly 'Make alliance with us'. There seems to me to be at least two possibilities about such inscriptions: one is that they were sent actually and bodily in some sort as gifts, but in the main as a letter with an invitation to alliance; the other that they indicate the overtures and conversations between the kings concerned, and when the pourparlers for the alliance had been discussed and concluded over a meal eaten in brotherly love, the inscription was recorded in the same place as a final formality binding both to their agreements. The first is certainly indicated by M xvi, A, the inscription from Malatia, wherein Benhadad and three other members of a coalition address themselves to

Lalli (?), the king of Tabal (Malatia), '[O thou] son of the ally of our forefathers, Lalli (?), make alliance with us'.[1] This stela (1·20 m. × 60 cm. × 30 cm.) would be an easy matter to transport, and the same might well be said of the Mar'ash lion and others. In the case of the inscription found at Restan, twenty kilometres distant from Hamath, we find that it begins in an exactly similar way to the long inscription from Hamath, and hence it appears as if one was sent as a missive.

Be this as it may, if the ruler of a city were inclined to accede to an invitation for alliance, whether the invitation was verbal or sent thus, he had only to display the stela in the market-place for such as could read to con and explain to their fellows, just as the Egyptian king inscribed his treaty with the Hittites on the walls of Karnak. With this explanation we can proceed to the historical contents of the published inscriptions, beginning with the relations of Benhadad II of Damascus with the surrounding tribes.

The need for Hittite and Syrian alliance against the great power Assyria is obvious from the Assyrian history given in § 20 ff., and it was Benhadad, a Napoleon of his time, who knit the tribes together. If the name of the king Tesup (Adad)-?-r of the Hittite be, as I think it was, Adad-idri or Benhadad,[2] we can see from his inscriptions his far-reaching and ubiquitous power and influence. He is tireless in making treaties with the sturdy highlanders to the north of Syria, whose gods were the gods of the hills. He left at least two monuments of his energetic diplomacy at Mar'ash, the ancient Marḳasi of Gurgum, whereon he had inscribed his alliance with Mutallu[3] of Gurgum, his 'son' Bauli,[4] and his 'grandson'(?) Nist[5]; the earlier of these is published in M lii, the later in M xxi. He begins by asking his 'friend', or, as he calls him in the later of the inscriptions, his 'brother' Mutallu, to make alliance with him, tabulating in his request the names of his Syrian and Hittite allies as an inducement to persuade him to join his alliance. It is not easy to tell what Mutallu did, for the Assyrian account represents him (see § 24) as paying tribute to the Assyrians in their western campaign of 859, but, from the efforts which Benhadad made to secure his help, he was accounted a valuable ally. Among the allies whom Benhadad holds forth to Mutallu as future friends we find, in M lii,

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[1] It is curious to see this same reminiscence of previous alliance appearing in Asa's message to Benhadad (1 Kings xv. 19), 'There is a league between me and thee, and between my father and thy father'.

[2] See § 33 for this identification: § 25 for his history.

[3] See § 24 for his history: his name occurs on the following published monuments—M ii, 1: xix, 2 (?): xxi, 1, 2, 5: [xxii]: [xxiii, 2, 3?]: lii, 1, 5 (?): Seal xlii, 5: TA 1.

[4] Unidentified at present (§ 41, *note* 1): name occurs M xxi, 2: lii, 1, 4.

[5] Unidentified at present (§ 49): M v, 4 (?): xxi, 2: lii, 3: TA 4.

Ḫunu,[1] who must be Aḫunu of Bît-Adini; Bark[2] (unidentified, but well known in Hittite); Tesup-mina[3] (presumably the accus. of Tesup-mis of Ivriz); Nks,[4] who is mentioned with Sangar on M xv, B, and described by Benhadad as (chief) of Aninna, probably the Adinnu of the Assyrian inscriptions, one of the first towns of the district of Hamath to fall before Shalmaneser; probably Arḫulini,[5] i.e. Irḫulîna of Hamath, Benhadad's great friend; Garali,[6] i.e. Ḳaral of the Aramaic inscriptions of Sinjerli, the father of Panammu I; Katte,[7] whom the Assyrians call Katê of the tribe of Ḳauai. We may put the date of this inscription at *c.* 860 B.C. In the second inscription, a few years later than the former, Ḳaral has dropped out, being probably dead, and a 'Pan-mi the king'[8] is mentioned, in whom I am inclined to see Ḳaral's son, who is usually written Pan-am-mi[9]; Arammi[10] is also mentioned, doubtless the Arame of Bît-Agûsi or Urarṭu, called 'Aram of Kask' on M xi. If we put this inscription later than 859 we must assume that Mutallu was still a power in the land: if earlier than 850 Pan-mi cannot well be Panammi.

From Mar'ash, too, comes a sculpture (M xxii) representing Tesup-k and [Mutallu (?)] at their historic banquet, making alliance, for this is the meaning of those so-called 'ceremonial feasts' which have nothing to do with gods or their worshippers. Just such another feast-sculpture is found at Karaburshlu, and another at Malatia (M xvi, B), which is inscribed with the name of *A*-[*ra*(?)]-*mi-s* (i.e. Arame?). It is to this custom that reference is made, I believe, in TA 7, 'our covenant with thee at my feast I have joined' (§ 68 (7)). Before leaving the subject of Mutallu of Gurgum, it is worth recalling that his seal is in existence, and his name is twice inscribed on it, 'Mutal of Gu(r)gum' (M xlii, 5, § 31).

Benhadad's records do not, however, end with the two inscriptions to Mutallu. He is one of four kings (of whom Irḫulîna may possibly be another) who join in sending a message to the king of Tabal (whose name therein must

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[1] See § 24 for his history: name occurs M lii, 1, 2: TA 1. For the lost *a*, cf. Gusi (Shalm. Mo., II, 12) with Agûsi (*ib.*, 27). I have used the phrase Bît-Agûsi for his district for convenience. (Cf. Maspero, *Les Empires*, p. 34.

[2] See § 73: name occurs M i: vi, 4 (?): x, 2: xi, 4: xxi, 3: xxiii, C, 2(?): lii, 1: TA 3, 5.

[3] Name occurs M xxxii, 1, 2, 4 (?): xxxiii, 3, 12: xxxiv, A, 1: lii, 2.

[4] Name occurs M xv, B, 2: lii, 2, 4.

[5] See § 25 for his history: name occurs M iii, B, 1: iv, A, B, 1: vi, 1: Restan 1: xvi, A, 1 (?), C, 1 (?): xlvii, 1 (?): xxiii, 3 (?): lii, 2 (?).

[6] See Sinjerli inscription of Panammu I (Von Luschan, *Ausgrabungen*), § 11: name occurs M lii, 4, 5 (?).

[7] See § 24 for his history: name occurs M vi, 2 (?): ix, 4: xix, 3 (?), 8: lii, 3 (?), 5.

[8] See § 56. [9] Name occurs M ii, 3 (?): vi, 3: xi, 2: xv, B, 3: TA 2 (?).

[10] See § 24 ff. for his history, and § 30: name occurs M xi, 4: (? xvi, B): xvi, C, 2: xxi, 1, 3.

be read Lalli[1]) on a lion-hunting stela found near Malatia, 'We Irḫulina(?), Benhadad, ? and ? greet (or send a message to) the lord of Tabal, the ally of our forefathers: O Lalli, make alliance with us.' This again must be prior to 854. Again, the Babylon stela (M ii) (which we must assume was at some time carried to Babylon as loot), from Ṭa-?-ar-s to Mutallu, 'his son(?)', states that Benhadad was concerned in presenting the image of Hadad (Tesup) which forms part of the stela, and that other well-known kings have taken part in the gift, among whom is a king named Amras, which must be the same name as Ambaris, a king of Tabal in Sargon's time (see translation of M ii, at end). Benhadad is also mentioned on the Aleppo inscription: and one of the Hamath inscriptions of Irḫulîna ends with 'I have engraved our covenant with Benhadad (or the city of Benhadad) the great'.

Next to Benhadad in importance comes his great friend Irḫulîna, king of Hamath. Three of his inscriptions, varying but slightly, chiefly in proper names, come from Hamath (M iii, B: iv, A: iv, B), and in these he speaks to 'the nobles of the king', asking them to make alliance.[2] Another inscription, a long one, comes from Hamath (M vi), and another from Restan, twenty kilometres south of Hamath, which show that a certain Bar-?-s spoke to Irḫulîna, asking alliance which was agreed on, while a certain chief, whose name I cannot read,[3] tells Bar-?-s apparently that he has sworn his pledges before an altar which he has made. The long text from Hamath mentions this same chief 'who swore to us by the gods', and Panammi, [with Irra[4](?)] and possibly Katê.

Benhadad and Irḫulîna are the two most noteworthy chiefs in the great coalition against Assyria; the remaining components of Benhadad's leagues are summed up in the Assyrian records roughly in such expressions as 'besides the kings of the Hittites' or 'the twelve kings of the Hittites',[5] or written out more fully (as in the case of the battle of Ḳarḳar) so as to include Ahab (whose name I cannot find in the Hittite inscriptions), the Ḳauai, whose chief Katê occurs frequently in Hittite, the Muzrai,[6] and some other tribes.

The kings of Sam'al and Ia'di play a great part in these inscriptions, as has been already mentioned. Besides the mention of Ḳaral in a Mar'ash text, Panammi occurs fairly frequently and we have also the 'brother of Panammi', whose name, as I have tried to show in § 73, is to be read Bar-ḥi, i.e. Bar-Ḫayâ

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[1] See translation of M xvi, A at end.

[2] On the difficulty which follows see § 80.

[3] His name occurs [M iii, B, 2]: iv, A, B, 2: vi, 2: Restan 2: xix, A, 5.

[4] Unidentified: name occurs M i: v, 1(?): xxiii, 2.

[5] I cannot help thinking that the 'Nine' who are so often mentioned in the hieroglyphs are connected with these 'Twelve' in some way.

[6] Note that Shalmaneser calls himself *mušamḳit* ^{mâtu}*Muzru u* ^{mâtu}*Urarṭu* on his Til-Barsip inscription (see my article, *PSBA.*, xxxiv, 1912, 72, 10).

(Kalammu). It is possible that Bar-ḫi's name is to be read on the Kirtschoglu inscription (M vii) which comes from Amḳ.

From the Sinjerli inscription of Kalammu we learn that Assyria helped him against a kingdom which appears most probably to have been Gurgum, a fact which indicates the break up of the Syro-Hittite alliance at some time not long after the murder of Benhadad, and the absorption under Assyrian influence of the kingdom of Sam'al, which appears to have been popular in the time of Panammu II, who is declared to have been the vassal of Tiglath-Pileser by Bar-Rekub, his son. The proof of the backsliding of Kalammu to Assyria is of great importance in the explanation of the Carchemish texts; for, if Kalammu is Bar-ḫi, the brother of Panammi, it will be natural to expect Panammi to have left the Hittite coalition too, and become subservient to Assyria, and, in consequence of this evidence of defection, it is not unlikely that Sangar of Carchemish and others who wavered between the two powers, sometimes paying tribute to the Assyrians, sometimes fighting against them, ultimately broke away from the Hittite coalitions, and yielded to the expanding might of Assyria. The latest mention of Carchemish in Shalmaneser's reign is apparently in 850 B.C., when Sangar is still on the throne: after this there is nothing further known from the Assyrian records about either Sangar or Carchemish until a brief mention of the city in Šamši-Adad's time. In other words, Shalmaneser had no further trouble with Sangar after 850. The reason is not far to seek: in the monolith inscription, after describing his warfare with Sangar in his eponym year, he goes on to state that he assessed him in a yearly tribute, and took his daughter into his harem, and in the adjacent lines he describes a similar procedure with 'Ḫaianu, son of Gabbaru'. What year this was is doubtful; I do not think we can fix it accurately, as the text not improbably describes a long process of subjection. It is likely that his marriage represents the end of hostilities. Moreover, he was firmly establishing himself at Til-Barsip which was by now an Assyrianized city, and hence it was only natural for Sangar to attach himself to this great new power. Further, as we have seen from the inscription of Kalammu, Sam'al was turning to Assyria for help against Gurgum(?) a little later, and it seems therefore clear that the Hittite coalition gradually dissolved after the death of the master-mind Benhadad. Indeed, his successor Hazael is deserted by almost every element of the former coalitions. With the death of Benhadad came the opportunity for Shalmaneser to break the individual power of each state singly, which had given him trouble: Sangar, Ḫaianu (Ḫayâ), and Arame had yielded, and after these we find the Ḳauai attacked in 840, 835, and 834 (in the latter two years Katê, their chief, is mentioned by name), in 838 Tabal, and in 837 Lalli of Milid with the kings of Tabal are overwhelmed; while in 834 Kirrî, the brother of Katê, is put on the throne of the Ḳauai.

If we omit the text M xv, B, a limestone slab which apparently contains over a portrait of Sangar the inscription relating to alliances with Nks and Panammi, we cannot help noticing the difference of the well-known Carchemish texts exhibited in the British Museum from other published Hittite monuments. These Carchemish texts are of basalt, one graven with an Assyrian winged figure, a small replica of the winged figures of Aššurnaṣirpal's palaces; a second is graven with the figure of a king holding a staff, as Assyrian kings are represented sometimes. The two longest inscriptions in the Museum are broken, one being inscribed on a column, which looks as though it had been transversely cut to admit of a Hittite full-face sculpture and guilloche pattern being engraved thereon.

In § 51 ff. I have tried to show that these three inscriptions contain the name of [Shalmaneser] 'King of Nineveh', or 'King of Assyria', and I hope to show that they bear the records or suggestions of alliances between Shalmaneser and the king of Carchemish and the chiefs of the neighbouring districts, one perhaps being his direct message to the former with a sculpture of himself.

M xi, as far as I can make it out, first relates that certain 'kings, with Panammi (and) Barḫi have sworn the pledges of (?) Shalmaneser (?), the king of Assyria', thus referring to the ultimate friendship of Sam'al and Ia'di with Assyria. Next we meet with the names Targu[r ?]-ni, Shalmaneser (?) king of Nineveh, and others who have 'given covenants'. L. 4 'Aram, the chief of Kaški, hath sworn before (his) great god (that) he . . .', &c., and finally comes the mention of the covenant of 'K-r-a the chief', who can be none other than the Kirrî[1] appointed in Katê's stead, which would lead us to assign this inscription to 834 B.C. approximately. This would make M ix somewhat anterior in date: in this text mention is made of a king called . . -as, 'Shalmaneser (?), king of Nineveh, the lord of lands, like a great god, (and) Pan(am)mi (?) the king' discussing friendship and the making of brotherhood. Moreover it apparently says that Katê and Bat[2] 'count us (?) as sons'. The Targu-ras[3] mentioned on these two inscriptions would almost appear to be a king of Carchemish subsequent to Sangar; for we now find on M x the abbreviated form Targu simply. This, a slab engraved with the king's figure, is directed to the king of Carchemish apparently; 'Shalmaneser (?) king of Assyria, lord of lands, sendeth a message to Targu-(ras) "make brotherhood with one making war against Sas . ., [also a king named 'The Sun is king', the ruler of Amḳ according to TA 4 ?], Bark,[4] chiefs of the Nine: O Targu(ras), my ally, . . .[5] is a foe: [do thou with him] make

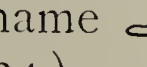
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[1] Name occurs M viii, 4: xi, 4, 5.
[2] Occurs also in TA 5.
[3] Name occurs M i (as Targu-r-r-s): ix, 2, 4: xi, 1: cf. xi, 2: xii, 4: xxxii, 2.
[4] See § 73.
[5] See translation of M x, at end.

war: ?-ar, a chief of the Nine, is a foe"'. Finally he ends with 'Against my foe [be friendly] with a friend: with a foe let us fight'.

Once outside Carchemish do we find Shalmaneser's (?) name, on the Gürün inscription which is too mutilated to give good sense; Gürün is probably the Guriania described in an Assyrian letter (K 1080), as Professor Sayce pointed out. Once also do we find the name Assyria apparently on the inscription found by Professor Ramsay on the Kara Dagh, fifty miles south-east of Konia; it must not be forgotten that even Tiglath-Pileser I (1100 B.C.) made incursions far into the north-west.

Lastly, in this class we have the great inscription of Tel Ahmar (Til Barsip); it makes Aḫuni (Ḫuni) to be the son of Mutallu, although whether it is the real or adopted son is impossible to say, and invites him to alliance, apparently also mentioning Barḫi [perhaps Panammi (?)], Guam[1] (Giammu of the Balikh region), Bark, 'the Sun is king' the ruler of Amḳ mentioned above, Nist (the 'son' of Bauli, from Mar'ash inscriptions), and the kings represented by the hare-sign and the leg-sign, both contemporaries of Benhadad (M xxi and M xvi, A). Since Giammu was murdered by his own people in 854, and the coalition of Ḫaianu, Aḫuni, Sangar, &c., was between 860-857, we may fix the date of this inscription at about this period. It is noteworthy in Shalmaneser's monolith inscription that just preceding the account of this coalition we find Aḫuni and Mutallu closely mentioned. Whether Ḫaianu was really alive, or whether his son had by this time taken his place, as seems likely from the inscription, is a difficult point.

Finally, on the Aintab inscription (Garstang, *Land of the Hittites*, pl. XLI) we meet the proper name  *K-a-k*, i.e. the Assyrian Kâki or Kakia. (For his history see § 24.)

Turning from these inscriptions which begin with the machinations of Benhadad and Irḫulîna among the tribes and ultimately end with the dominance of Shalmaneser, we may examine the last group from Andaval, Bulgar-maden, Bor, and Ivriz (M xxxi–xxxiv), which appear, from the names in them, to be about Shalmaneser's date. Notably do we find Tesup-mis[2] (who apparently occurs as Tesup-min(a), accusative, in M lii, 2) whose portrait is given on the rock at Ivriz. These four inscriptions are concerned with the relations between A-r-ar-a-s[3] (which must be Ariarathes, the name of several kings of Cappadocia), the king of Tyana, Tesup-mina, Tal-ḫ-s[4], and others: Araras suggests alliance

[1] See § 25 for the history: name occurs M xvi, C, 1: Kellekli, § 70.

[2] The position of the land of Ṣalla appears to be to the north-east of Bît-Adini, and hence is perhaps too remote for us to compare its king Adad-'me (Adadimmi, Adadmi) who paid tribute to Aššurnaṣirpal, with Tesup-mis. The names, however, are worth comparison. His name occurs as Tesup-mis M xxxiii, 12: xxxiv, A, 1: Tesup-mi-n(a), [M xxxii?]: xxxiii, 3: lii, 2.

[3] Name occurs M xxxi, C, 3: xxxii, 1, 2, 3: xxxiii, A, 1: xxxiv, A, 2, B, 1.

[4] Occurs M xxxii, 1: xxxiii, 1.

to Tal-ḫ-s, and sends him a present of 'Tyanian wood' (M xxxiii). Tesup-mis was adopted by Araras as his son, in proper fashion, so that Tesup-mis takes as another name Araranins (the equivalent in Greek would be Ariarathides; see M xxxii, 1, where it is used clearly as a name). The two kings have made a record of their new relationship on the rock at Ivriz: the smaller, Araras, greets his new son in so many words, and the larger amplifies his name Tesup-mis by the addition 'I am Araranins'.[1]

On the question of the Indogermanic origin of the Hittite Language.

§ 88. Since the publication of the Arzawa letters in cuneiform it has been held that the language in which they were written was Indogermanic, and the subsequent discovery of 'Hittite' cuneiform tablets from the Hittite country settled the point that Hittite cuneiform showed practically the same language as the Arzawa letters. It was held that the terminations *-mi*, *-ta*, the nominative *š*, the accus. *-n*, the root *da* 'to give', the word *ḫat-ra-a* (ἕτερος), among many other suggested comparisons, all pointed to an Indogermanic origin.

As I cannot claim to be an Indogermanic scholar, I have only ventured to make what seemed to be the most probable comparisons, placing the Hittite and the suggested Indogermanic words side by side for others to discuss.

Personal suffixed pronouns, compared with Indog. personal pronouns.[2]

Hittite. *-mi, -mu, -m : -t(a) : -s : -na, -ni, -n, -an :-ut(?) :-u,*

Indog. (accus.). **eme, *me, *mē(m) : *t(u̯)e, *t(u̯)ē(m) : *s(u̯)e, *sē(m) : *nes, *nōs, *n̥s, *nsme : *u̯es, *u̯ōs, *usme.*

There would be little difficulty in seeing the Indog. in the Hittite *mi-a* 'I (am)', for in Old Irish the accus. does duty for the nominative (Brugmann, § 439, 2). The plural *minia* is more difficult.

The case-endings of the masc. noun in the singular.

Hittite (sing.): *(n.)-s : (a.)-n : (g.)-s : (d.)-i.*

Indog.: *(n.)-s : (a.)-m : (g.)-s : (d.)-ai̯.*

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[1] Can *A-r-ar-a-nin-s* be the original of the Greek form *Ἀριάμνης* (the name of two kings of Cappadocia, one the father of Ariarathes I); or should we see the *-μνης* in the -mina of Tesup-mina, in which case *Tesup-* would take the place of *Aria-* (= *Ara* 'god?', § 44, *note* 1)?

[2] I have taken the grammatical forms from Brugmann's *Comp. Gram. of the Indogermanic Languages*. I am much indebted to Professor Conway of Manchester University and Mr. Lionel D. Barnett of the British Museum for advice on this matter, and particularly for their timely caution against the danger of making comparisons: they are, of course, not responsible for anything in this section, which is, after all, only a collection of suggestions.

The Hittite plural (*n.*)-*e* : (*a.*)-*an* : (*g.*)-*a-e* : [(*d*?)-*aš* from cuneiform] does not follow the primitive Indog. *-es*, *-ns*, *-ŏm*, *-bh-* *-m-*, but rather those forms taken by the Greek *-ι*, *-ονς*, *ων*, *-οις*. The neuter plur. remains *-e* in the accusative, i.e. *n-m-n-e* (§ 68).

The tenses of the verb.

Imperf. Hittite: *√-mi*, *√-m* : *√-s-t(a)* (?) : *√* : *√-n(a)* : *√-u-t*(?) : *√n-si*.
Pres. Indog.: *√-mi* : *√-si* : *√-ti* : *√měs(i)* : *√-te* : *√-nti*.
Perf. Hittite (augmented tense)
a-√-mi : ? : *a-√-t* : [*a-√-n* § 86] : ? : *a-√-n-si*.
Pret. Indog.: *e-√-m* : *e-√-s* : *e-√-t* : *e-√-měˇ(m)* : *e-√-te* : *e-√-nt*.

The ending *-r-a*, which only occurs in the 3rd pers. plur., is comparable to the Aryan *-r* 'almost exclusively in the 3rd plur.' (Brugmann, § 1077), e.g. Avest. *-reˇ*. The Hittite ending *-r*, *-ir* (3rd pers. sing., § 69) may perhaps be connected with this, but compare Brugmann, § 1076 ff.

The prepositions in § 77 will suggest Indog. equivalents: a possible enclitic *ṭ(a)* = 'and', Gk. *δέ* (§ 78): 'like' (§ 76) comparable to Indog. relative forms. The following roots and meanings seem to be fairly certain: *sau* 'make, do', Skr. *ján*, Z. *zan* 'create'. *k* 'go, come', Indog. *gâ*. (The hieroglyph for the sign *k* is a foot.) *ṭ(a)* 'give', Skr. *dâ*.

The sense of the following words fits the translation; the Indog. meanings are comparable: *ar-k* 'to swear', Gk. *ὅρκος* 'an oath' (a difficult comparison to maintain): *ar* 'to join', Indog. *âr-* 'to fit': [*a-t(u)* (?) 'father (?)', Gk. *ἄττα*]: *k-a-n* 'friend (?)', Skr. *cánas* 'favour', Z. *cinaiih* 'love' (Indog. *√k'ana*), or *√kâ* 'to love': *kar* 'commemoration', 'praise' (M ii, 2, *notes*), Indog. *kar*: *u-n-u* 'a memorial stela (?)', Indog. *neu* 'consider', &c. (M ii, 2): *u-m-u* 'a covenant, agreement (?)', cf. Indog. *nṓmn* 'a name' (Skr. *nâ'man*). See § 68. The Hittite sense apparently does not allow of it meaning 'signature', but it is possible that the meaning 'agreement' arose out of the primitive idea of signing a name. The Indog. root *nô* = 'to mark, designate'.[1]

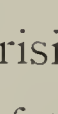
Compare also the suggested Indog. words in the list of signs. A curious parallel is suggested by the word 𓀀𓀀𓀀 *san*, both 'to make' and 'a king', for the English word *king* is supposed to come ultimately from the root *gen* 'to create', the Skr. *ján*.

[1] We have to add to these the following words from Hittite cuneiform: *at-ti-iš-ši* 'his, her father (?)', like *a-t(u)* (?) above (Y 17) (cf. *a-ta-mu*, A ii, 1); *an-ni-iš-ši* 'his, her mother (?)' (Y 17) *ἀννίς*, *anus*; *e-eš-mi*, *e-eš-tu*, Indog. *√as-* 'to be' (A i, 7, 10: Y *r.* 3): *ḫat-ra-a*, *ἕτερος*? (or *pa-ra-a* A i, 20: ii, 10: B 2: P 16: Y *r.* 38 (but see § 48)).

Consonantal changes.

It would seem probable that Hittite *s* sometimes varied with Skr. *j*, as in *san*, *ján*, and *as* 'ibex', Ved. *ajás* 'he-goat', but it is difficult to say anything with certainty yet until the Indogermanic origin has been thoroughly proved. At the same time the Hittite *s* also represents the Indog. *s* (as in the nominative *s*).

Assyrian words in Hittite.

§ 89. As is to be expected, Hittite cuneiform, being borrowed from Mesopotamia, shows several Babylonian words. Some of these are written ideographically:—*AN.MEŠ-aš* 'gods' (Y *r.* 8, 9, 10), *AN.IM-aš* (&c.), Tesup (Y 3, 21, 38), *AN.UD-i* (&c.) the Sun-god (Y 21), *KUR-ia-aš* 'country' (A i, 25), *DU.MEŠ-aš* 'sons' (Y 42), *ḪAR-SAG-MEŠ-aš* 'mountains' (Y 10), *LUGAL-uš* (A ii, 16), &c., &c.; but more important are those written syllabically, for they show for certain that several foreign words were actually borrowed and pronounced as written. These are *a-bu-ia* (W 19), *a-bi-ia* 'my father' (Y *r.* 39) (*a-bi-e* Y 32, 33, *a-bu-u-uš* Y 37 ,38, *a-bu-u-un-na* Y 27, 31, &c.): possibly *a-ḫa-ti* (= *aḫu* 'brother'?, § 33 *note*), *ad-din* 'I gave' (W 19), *a-na* 'to' (Y *passim*: A [i, 2], ii, 5: Al. 7, &c.), *be-el AN-lim* 'lord of the gods' (Y *r.* 37, 40), *-ia* 'my' (G 11, K 3, Y *r.* 42, &c.), *i-ia-zi* 'to me' (Z i, 2): *i-id-din-wa* 'he gave' (Y 21), *it-ti-in-nu-ṭa* (G 15), *i-na* 'in' (G 1, 6, &c., Y *r.* 30, Z i, 1, 8), *-ka* 'thy' (Y 2, 7), *ki-i* 'that (?)' (Y 16, &c.), *ḫal-za-iš* (&c.) 'fortress(?)' (Y 38, &c.), *ma-da-at-aš* 'tribute (?)' (D *r.* 14), *pa-ni* 'before', lit. 'face'[1] (Al. *r.* 4: Y *r.* 36, 40: *a-na pa-ni* H 7, W 19), *ša-li-im* 'peace' (Z 2), *šu-lum* 'peace' (Al. 10). Hence it is not surprising to find in the hieroglyphs  = *pan* 'face', and perhaps *a-b(a)-u-t(a)* 'thy father' (M ii, 1), *a-ḫu* (?) 'brother' (§ 33 *note*), with the phonetic complement *ḫi* indicated after the ideogram for 'brother' (§ 73), and possibly the Aramaic *bar* 'son' in  *bar* (§ 73).

The Alphabet.

§ 90. Up to the present this decipherment shows *a*, *b(p)*, *ṭ*, *e*, *g(k)*, *ḫ*, *i*, *l*, *m(w)*, *n*, *r*, *s*, *t*, *u*, *z* as the alphabet in use: the Hittite cuneiform shows in addition *g* (distinct from *k*), *d*, *p*, *ḳ* (rarely), *š*, rarely *ṣ*. *N* appears to be sometimes assimilated when preceding *s* or *z*. The question of *š* or *s* is a difficult one, but this much can be said that the nominative of the tablets from Boghaz Keui is represented by the cuneiform *š* (*mMur-ši-li-iš*, &c.), while in the eighth century we find it in *s* (*Pi-si-ri-is*, W.A.I. iii, 9, 51). At the same time *Sa-an-ga-ra* is repre-

[1] ŠI (= *pa-an*) is used thus apparently, in D 18, E 15, O 2.

sented by the Hittite hieroglyphics *San-gar-s*, where the *san* is the same character as that for the root meaning 'to make', Skr. *ján*, Z. *zan*, and yet the Skr. nom. is marked by *s*. Hence it seems probable that about the middle of the second millenium B.C. the Hittites distinguished between *s* and *š*; whether they did in the ninth century is a difficult question which is suggested by *Pi-si-ri-is*, but the evidence is not sufficient for us to decide. At the same time the possibility even in the earlier period of *ša-an* varying with *sa-an* in the cuneiform is suggested in § 52, where also a possible variant *š-an* for *san* in the hieroglyphs is given. As, however, *san* is the only hieroglyphic word I have as yet found doubtful in its sibilant, I have not made any distinction, using *s* as the symbol for the nominative termination, &c.

B apparently varies with *p* in hieroglyphs, as is discussed in the notes to the translation of M ix at end.

§ 91. The hieroglyphs show the following:—

Animals: Ibex, bull, ram, horse or ass, calf or dog. The camel rarely, if ever, represented.

Birds: Only one kind, apparently an eagle.

Vegetables: Two or three kinds of leaves, flowers, or grasses; a tree.

Dwellings: Ground plan of a house: the tent is a possibility in the form of a wigwam.

Implements: Firestick (?), knife, graving tool, vessels of pottery, cord, quiver, tablet (?), altar (?), table, grave-shaft (?), coffin (?), waterskin (?).

Parts of the body: Full figure, upper part of body, male head, face, hand, foot, leg, uterus (?), penis (?).

Parts of animals: Horns.

Natural objects: Lightning (compare the Hittite idea with the three-pronged thunderbolt in the hand of Hadad), fire, water, mountains.

Clothes: High cap.

Labour: A scribe is represented by a seated figure holding a graving tool: a hand holding a graving tool.

Numerals: I, III, IV, IX by separate strokes; 10 and 100 apparently by especial symbols.

From the above it may be inferred that the originators of the system of Hittite hieroglyphs were a pastoral people keeping cattle and sheep, living in mountains where the rain or cold compelled them to live in houses or steep-sided tents, where among the fauna were counted ibexes and eagles; their draught beasts were horses or asses, not the camel, which is practically useless in highlands; they used a decimal system of counting; possibly the firestick—if my suggestion is right—indicates a terrain without flints. For weapons they

had bows (?) and arrows (?), and knives probably of bronze; they were adepts in making pottery. Apparently they buried in coffins in shafts or artificial caves; one of the pots drawn is much like the shape of those used in early burials at Carchemish.

The use of these pictures is similar to that of most picture-writings; by metathesis, e.g. the name for the ibex *as* is used for the syllabic value *as*. But the ideographic value was sometimes retained, either in the original sense or in some transferred allied meaning; e.g. a tree would indicate 'wood', but a hand outstretched 'an ally', or a foot 'to go'. There were two ways of indicating an ideogram: one by  placed before and after, as 'an ally', the other by [1] placed after, as . These indications are not indispensable: and the latter cannot be said to mark a plural in the face of TA 4, 'we are one speech'.

As in Egyptian, phonetic complements were used.  *nin* may be used by itself or with the addition of  *n*; *san* is similar in its apparently arbitrary complement *n*; Sangar's name may be written *San(n)-g(gar)-s* or simply *San-gar-s*. As in Egyptian also, we find the hieroglyphs arranged to present a symmetrical appearance at the cost of their more exact order, particularly when the phrase is well known. This latter method gives us a reason for the usually inverted order of the name Mu-tal, and possibly *b(a)-a = a-b(a)* in the common phrase 'Make alliance with us'; and if a common group ('god' + *gu* + 'bird') is equivalent to Targu, as I have tried to show in § 11, it is reasonable also to explain this in a similar way, the bird then having the value *tar*.

It is surprising that determinatives, as understood in Egyptian, should be so little used, and it is striking to see how effectively the Hittites dispensed with them. As far as I know there are only (1) the god-sign placed before god-names, and frequently omitted if the god's name forms a component of a personal name: (2) the sign for city or country, used after place-names, which is frequently omitted, as in *K-as-k* (§ 35), *U-'m-k* (§ 52 (5)), *K-a-u-a-u-t* (§ 60), *Kat-n-a-u-t* (§ 60), and even *Gu-gu-'m* (= Gurgum) on a seal (§ 31): (3) the stroke (written usually diagonally) indicating a personal name following, which may be omitted at pleasure: and similar to this the 'tang' marking place or personal names (§ 17).

§ 92. It will have been remarked throughout this article that no trace of the native name 'Hittite', 'Ḫatti', 'Ḫeta', has been discovered: moreover, the translations of all the North Syrian Hittite hieroglyphs which comprise the greater part of our texts and are herein given, reveal no indication of such a word. Here is a problem which we must set ourselves to solve.

[1] Unless this has a syllabic value: see sign-list, No. 8.

From Winckler's texts there seems good reason to think that in the fourteenth century Boghaz Keui was called ^{alu}*Ha-at-ti* (Winckler, *Orient. Lit. Zeit.*, Dec., 1906, Sonderabzug, 15: L. W. King, *Chronicles concerning Early Babylonian Kings*, i, 148): and the king of the Hittites *šarru rabû šar* $^{mâtu\ alu}$*Hat-ti* (W 27). We may therefore expect the word Hatti to be found in the texts of Central Asia Minor if anywhere, which include those of Boghaz Keui, Fraktin, and Kara Dagh (Rams.).

Fraktin (M xxx, see translations at end) shows two kings, one possibly Mautenre, as the Egyptians called Mutallu, making offerings to gods, and in a single line to the right an inscription which reads 'ally'-*m-zi*-'country' 'ally'-*e ar-mi*. This shows that our sign for 'ally' is used phonetically: and hence we must read tentatively, 'I have joined alliance with(in) ?-*m*-country.' Are we to see a value *ḫat* for this 'ally'-sign, reading, *Ḫat-w*-country?

Similarly in Rams. 6, after the king's name, are we to see the 'hand-sign' followed by 'country', the whole group being thus *Ḫat*-country?

An examination of the later texts will show that this hand-sign certainly has a syllabic value:—

(*a*) *ID-r-s*, M ix, 2–3: 'X, Y, and Z as an ally (allies) have accepted [with thee]: I will act with thee, I will make sonship with thee: *ID-r-s u-b(a)-r-a-t(a) nis*(?)*-zi mi-t : mi* (=? they take thee for a son with me).'

(*b*) *ID-r-a*, M vi, 3: *te*(?)*ID*(?)*-r-a* 'god'-*Tesup-mu*.

(*c*) *ID-r*, M xxxiii, 12: *a-b(a)-ir* ?*-e-ni li-u-s-ṭ(a) ID-r* 'god'-*Tesup-mi-s*.

(*d*) *ID-ir-u*, M xxxiii, 11.

(*e*) *ID-ir-e*, M xxxiii, 3: 'I have commanded *b(a)-ir-t(a) ID-ir-e-mi : e-a-t(a)*, &c. (i.e. that my *ID-ir-e* bring it).

Hence there appears to be a word which, on our assumption of a value *ḫat*, would read *ḫat-r-s*, *ḫat-r-a*, *ḫat-r*, *ḫat-ir-u*, *ḫat-ir-e* (plural).

Hittite cuneiform shows a word *ḫatra*:—

A i (17) (paragraph) *a-ni-ia-at-ta-aš ma-mu ku-e ṭa-aš ḫa-at-ra-a-**eš (18) *ub-bi wa-ra-at-mu ne-it-ta up-pa-aḫ-ḫi EGIR-an-ṭa* (19) *na-aš-ta* ^{am}*ḫa-lu-ga-tal-la-at-ti-iu am-me-el-la* (20) ^{am}*ḫa-lu-ga-tal-la-an EGIR-pa ḫat-ra-a ḫu-u-da-a-ak* (21) *na-i na-at u-wa-an-du*.

A ii (10) (paragraph) *uu-mu* ^{m}*Lab-ba-ia-an EGIR-pa ḫat-ra-a* (11) [*i*]*š-t*[*u*] *amel aš-šu-mi-ia li-li-wa-*[*a*]*ḫ-ḫu-u-an-zi* (12) *na-i biš-un-na-uu me-mi-an ab-bi-az* (13) *EGIR-pa ḫa-at-ra-a-i*.

A ii (21) (two paragraphs) *z*[*i*]*-ik-*[*m*]*u eš-šar-aš aš-*[*š*]*u-u-li* (22) *ḫa-at-ra-*[*a*]*-i nam-ma-za* [*t*]*ag*^{an} *EGIR*^{an} (23) *i-i*[*a*] | (24) *Ab-zuu ku-e u-ṭa-an-zi* (25) *uu ue-e*[*š-r*]*a-ni b*[*u*]*-ḳa ḫa-at-ri-eš-ki*.

[*Pa-ra-a* in Y *r.* 38, *LAH AN-lim ḫa-at-ki* (or *di*) *na-aš-ta pa-ra-a* . .: P 16 . . . *na-ta pa-ra-a*: B 2 . . . *LUGAL-i pa-ra-a* . . . *si-ib*, appears to be more probable than *ḫat-ra-a*, on account of the well-known root *pa* (§ 48).]

I admit I cannot suggest anything better than 'other' which has already been suggested. 'Messenger', which is to be expected in M xxxiii, 3 for *ḫat-ir-e*, is already accounted for by the word *amḫalugatalla*: and *ḫat-r-s*, in M ix, 3, is a difficulty. What can be said is that, leaving the question of the meaning, there seems to be some probability for the existence of *ḫatra* both in hieroglyphs and cuneiform, on the assumption that the hand-sign is *ḫat*, it being possible that the Fraktin and Kara Dagh inscriptions spell out the name Ḫatti as *Ḫat-w-* 'country' and *Ḫat-*'country'.

Out of this arises another problem: supposing that we have identified the word *Ḫatti* in the hieroglyphic texts of the proper Hittite district, how is it that we have found no indication of such a place-name in the later ninth-century North Syrian texts which are far more numerous, especially when the Assyrian cuneiform still constantly uses the expression *Ḫatti*?

I can only offer a tentative suggestion that the name was not used by the 'Hittite' allies in the ninth century: but that they called themselves or were known as 'the allies' which (on our assumption that the 'ally' ('hand')-sign has the value *ḫat*) would be pronounced by the Hittites as '*ḫat-e*': and that the Assyrians (and Hebrews) borrowed this as a vague term for the Hittite coalitions, under the impression that it meant their country; or possibly, by coincidence, since the Egyptians had met the Ḫeta in Northern Syria, the word *ḫat-e* 'allies' assumed the position which the old gentilic Ḫeta had aforetime held in this land.

TRANSLATIONS

I append the following suggestions for translations to the greater part of the texts published in Messerschmidt's *Corpus*. Naturally much is tentative, and the copies of the inscriptions themselves still lack much in accuracy. I have begun with the inscriptions of the king whom I have identified with Benhadad.

(A) The Benhadad (?) Inscriptions.

M xxi, *the lion from Mar'ash*. The inscription is from Benhadad to Mutallu, the king of Gurgum (Marḳasi), and incidentally to Arammi (of Bît-Agûsi), probably the one who is known as the 'Chief of Ḳaški' (M xi, 4), Bauli, Nist, and Bâmi, mentioning ancient alliances and inviting them to continue in this friendship. As is usual in such cases, he mentions the names of other Hittite chiefs who are prepared to join him. Date, second quarter of ninth century, probably a little later than M lii, which mentions Ḳaral, while M xxi only speaks of 'Pan-mi' (= Panammi ?). I have collated the text as well as I can from the cast in the British Museum.

(1) *Te*(?)-*a-san*(*n*) *"Tesup-id*(?)-*r* 'brother'-*k-n-ni-s* : *"Mu-tal*;-*a-ḫ-as* : *"Gu-gu-'m*
Saith Benhadad unto his brother Mutallu, the great, of Gurgum,

-*a-ḫ-n-as*-'place' 'lord'-*k-n-s* *"Ar-am-mi* *nin*(*n*)-*s* : *"?-ni-li-*(*n*)*nis*
the great: (also) unto his lord Arammi, the son of ?-nili

: 'ally' :-[*ḫ*] *b*(*a*)-*a mi-nis* *"Tesup-id*(?)-*r* 'brother'-*k-ni nin-as*
'Make alliance with us.' Benhadad unto the son of his brother

(2) [*Mu*(?)-*tal*(?)]-*li-s* : 'ally' : 'ancestors'-*am nin* *Nis-t B*(*a*)-*a-u-li nin-as*
Mutallu (?), the son of the ally of my(?) ancestors, Nist, the son of Bauli:

; *"Mi-*? ; *Mu*(?)-?-*li-s* : 'ally' :-*e* 'ancestors'-*am* ?-*man*(?) *ar-nis*
Mi-? (brother ?) (of) Mu(?)-?-li (?), the allies of my (?) ancestors, ? , 'Join us.'

"Tesup-id(?)-*r* 'ally'-*k-ni nin-as* : *"Mu-tal*;-*a-ḫ-nis*
(Saith) Benhadad unto the son of his ally Mutallu the great,

(3) : 'ally' :-*n*(*a*)-*a-s* *"B*(*a*)-*a-mi nin* ?-*li-Tesup* : 'ally' :-*n*(*a*)-*a nis-n*(*a*)-*a "Ar-am-mi*
our ally Bâmi, the son of ?-li-Tesup (?) our ally, our son, Arammi,

nin(*n*)-*nis* *"?-li-s* : 'ally' :-*e ar-nis* (or *ṭ*(*a*)-*nis*)
the son of ... li, 'Join us as allies' (*or* 'give us hands in alliance').

'god'-*n(a)-k* "*Pan-mi san-nas* *Bar* (?)-*k-u* :'ally':-*ḫ*- . . .
Like (By?) our god, Panammi(?) the king (and) Bark [have?] made alliance

-nis 'ally'(?)-*e-k*
[with] us, like allies (?)

(4) ?-*san-as* 'lord'-*k-nis* "*Pan-mi san-s* : *Gar-b(a)-ni*
? (Saith Benhadad) unto his lord Panammi (?) the king, Garbani,

san-nas : 'god' (?) *gu-b(a)*(?)-*s-n*(?) ?-*a-k-nis* : ? *;am li nis* *san-n*
the king, . . . (name) : unto his [Nine?] ?, '[Sonship?] we will make':

'lord'-*k-nis* : *A-b(a)* : *te*(?)-*san(n)-m* : *ID-k-m* 'god'-*ḫ-m-n* "*Pan-mi-u*
unto his lord Aba (?), 'I promise I will fight.' By my great god, Panammi (?)

a-b(a)-u : *te*(?)-*san* :ally':-*k-n* : *ID-n* *nas-k-n-mu* (or, *ID-(n)nas mu-k-n*)
with them spoke for alliance, 'A throne for my sons (*or*, our throne for me)

ḫ-n *nas* ?-*a-u* : *t(a)-a* : 'ally';-*I-u-n(a)*
we will make,' (and) the sons of the Nine (?) [said?], 'Our only ally

u-t (or *t-u*?) *ḫ ;* *(n)nas*
are ye' (*or* for our common alliance have spoken). The chiefs of the sons

(5) ?-*a-e* : *ḫ ;* "*M*(?)-*am-am*-?-*a*
of the Nine (?), the chiefs M(?)-am-am- ?-a (*or* M(?)-am of Am-?-a)

Gar-b(a)-? *Mu-e* 'god'-*Tesup-u-nis-k-n* 'god'-*n-ni* *s-k-e* "-?-*ni-k*
Garba . . . (?), . . . unto our god Tesup, our god, are . . . -ing (?) ?-nik (a chief)

: *a-b(a)-u* : ? *nin-nis* 'brother'-*k-n-nis* : *N*- ? *nin e n*
(*or*, ? (a chief) like us) with them a feast (?) . . . : unto our brother . . . . . .

'god' 'brother'-*k-ni-(n)nis* : "*Mu-tal; a-n(a)-mi u-t:a-b(a)* : *Mu-tal ;* *a-n(a)* . . : .
Unto the god of our brother Mutallu I . . . you : with Mutallu . . .

'ally'-*e ar-ni-u* (or, 'ally'-*e-ni ar-u*) . . : *mi* . . .
as allies we are joining them (*or*, our allies are joining) . . .

(6) . . . *ni e* : *t(a)*-[*a*] *k ;* [*ID* ?]-*k-mu* : *kat-u* : *a-b(a)* . . *Gar*-?-*e* 'ally' . . . "(?)*gu n ar ar* :
. . . . . to go against [a foe (?)] : they with . . . . . .

an (? or 'ally')-*u* : *n* . . . *nin-r a-b(a)-n* 'god' 'ally'-*k-ni-nis ; kat-a-mi ; ID-m-mu* :
they have set (?) . . . with us : unto the god of our ally I myself am . . .

'ally'-?-*s-u* : *a-u*
alliance . . . , who

(7) : *te*(?)-*san-m* : *ID-k-m*
promise I will fight.

Notes. l. 1. On l. 1, see §§ 17, 30, 33 ff., 50. On 'brother', § 38: on Gurgum, § 29: Mutallu, § 31: Arammi, either the king of Urarṭa or Bît-Agûsi, § 30. The character in the unknown name following might be the hare's ears: possibly the *-ni* might belong to *nin-n-(ni)-s*, and we might see an inverted *lal* in this character, reading Lal-li, but it is hardly to be considered. For the syntax at end of line, see § 66.

l. 2. On 'ancestors', § 50: Nist, § 49: Bauli, § 41, *note*: the name following might begin *"IV-mi* . . .: see notes to translation of M vi, p. 115. The character after 'ally' may be *n* or *e*.

Ar-nis. A verb is necessary here, parallel to 'make alliance with us' in the previous phrase. A similar phrase occurs in M lii, 4 ('Saith Benhadad unto his ally Niste, the son of Bauli, make alliance with us: Bâmi, son of the ally of [our] ancestors') *kat-nis ar*. If it is an imperative form (parallel to *ṭ(a)* of M i, *san* of M x, 1), we can see in *nis* and *kat-nis* the oblique case of *-n*, *kat-n* 'we' (similar to that in the form *minis* from *mini*" 'we') and probably a by-form of *-nas* (§ 58), and translate the whole 'join us'. The finite verb occurs in M vii, 2— : 'ally' : *ar-mi* 'I have joined the alliance': the same phrase is used in TA 5 (see § 68), M xxiii, c, and probably TA 4. TA 7 gives '(in) our covenant with thee at my feast *ar-mi* I join'. Perhaps we should see it in M ix, 4 ?-*a ar-e Kat-n-a-u-t*, &c., '... the Ḳatnai are ioining ...' (see translation p. 117). (I admit that the sense has been suggested by the Indoger. *ar*.)

Are we to see the root of *ar* in *ir-r-a-t(a)* (M ix, 3 'will join thee'); *ir-r-a-u-t* 'they (?) will join you' (M xv, B, 3); and perhaps an imperative *r-r* (? M viii, A, 2, 'So-and-so; *te*(?) *r-r a-b(a)-u* hath said, Join (?) with them,' doubtful), and *r-r-u-t* in a new Jerabis inscription? Cf. also 'Benhadad (and) Tesup-k : *r-n-zi-t(a)* : *ID-n* : share (?) for thee the head' (M ii, 4), : *r-n-zi-t(a)* occurs also on a new Jerabis inscription where it might well have this sense. It is remarkable to see that *r* can apparently be doubled; cf. the forms of the proper name *Targu-r-r-s* (genitive, M i) and *Targu-r-s* (nominative, ix, xi). This is certain from a comparison of M i, and a new Jerabis inscription, which show *Targu-r-r-s* and *Targu-r-e* in juxtaposition to the name 'god'-*Sul*(?)-*e-s* and 'god'-*Sul* (?)-*e-ni* respectively. Compare also *r-u*, M ii, 6.

In addition to these words beginning with *r*, we also find a series, *r-s-mi*, *r-s-mu*, *r-s-t(a)* (to be placed here?), *r-s-zi*. *r-s-mi* and *r-s-mu* are used with *n-m-n* 'covenant' as an object (§ 68: M liii): *r-s-mi* occurs on a seal (M xlii, 1): *r-s-t(a)* is doubtful (§ 69); *r-s-zi* is used in § 83, 'will join (?) thee', and once more on a new Jerabis inscription, and possibly in TA 3. The meaning which fits the word is again 'join', but we cannot suppose that *r* and *r-s* both represent roots meaning 'to join': either there must be some difference of meaning, or a different voice might possibly be indicated. Again, where are we to place *a-u* . . . (name) *r-n-t(a)* (§ 83)?

Another word beginning with *r* is *r-nin(n)-t(a)* which appears to be from the root *r-n*, 1st pers. plur. with suffix *t(a)*. It occurs on TA 4, 5, 8 always followed by 'Make alliance with us'. I can only suggest some such meaning as 'ask, request'.

There are only about half a dozen words which I have been able to find beginning with *r* in Hittite cuneiform, and none of them are of any help here: possibly *ir-ri-iš-ša-[an]* D *r*. 10, and *ar-nu-an-zi* G 8, 10, &c., might conceal similar roots.

l. 3. Bâmi, also M lii, 4. Pan-mi san-s, § 56: Bark, § 41, *note*, § 73.

l. 4. With *Gar-b(a)-ni*, cf. the name Garbatas, the shield-bearer of the Hittite king in the war with Rameses II. On the possible abbreviation or synonym for 'the Nine', see § 64, *note*. The phrase about the throne which Panammi (?) uses is similar to one spoken by Ḳaral, his father, M lii, 5. *T(a)-a* ought to be the ordinary particle *ta* here, but some part of *t-e* 'to speak' would fit excellently.

M lii, *from Mar'ash*. The date is a little earlier than that of M xxi. Benhadad suggests alliance to Mutallu of Gurgum, and Bauli, urging that Aḥunu and others [are friendly] and that certain chiefs have joined against possible foes of Nks (the friend of Sangar). Nist and Bâmi, are also invited, it being claimed that Ḳaral (of Ia'di) and Katê (of Ḳauai) [are well disposed].

(1) *Te*(?)-*a-san*(*n*) *Tesup-id*(?)-*r* 'ally'-*k-n-ni-s* : *Mu-tal* ; -*a*-[*ḫ*]-*s* : "*Gu-gu-'m*
Saith Benhadad unto his ally Mutallu, the great, of Gurgum,

-*a-ḫ-n-s*-'place' : 'lord'-*k-s* *B*(*a*)-*a-u-li*[1] (*n*)*nin-as* : *Mu-tal* ;-*a-ḫ-nis* : 'ally' :-*ḫ*
the great: unto his lord Bauli the son of Mutallu, the great: 'Make

b(*a*)-[*a*] *mi-n-s* . . *n* (or *t*(*a*)-*a*) "*Ḫu-nu* *A*(?)-[*ṭ*(*a*)?]-*n*(*a*)-'place' . . *n* . . (title ?)
alliance with us'. Aḫunu of A[di]ni(??), ...

U-li-n-e (title ?) *B*(*a*)-*r-k* *nin-n* *an-n*(*a*)
Ulini (?), Bark we have set as our son (?):

(2) 'god'-*Tesup-mi-n*(*a*) : *r-k-n* : (title)? ; *B*(*a*)-*nin* : *ḫ* ; *n-as* *IX-a-e* :
[To] Tesup-mis we have [sworn (?) that] -Banin (?), the chiefs, the sons of the Nine

t(*a*)-*a* *ID* : *N-ka* *A-nin-n*(*a*)-'place' : *nis-u* : 'ally' *ar-e* *Lal*(?) *kat*(?)-?
against a foe of Nks of Adinnu (?), their son, are joining in alliance. [Lalli ?]

"*Ar-ḫu-li-ni*[2] *mi-r-a* : *t-e* : ? ;-*an*(?) *as e* : "*Ḫu-nu* *ir*(?)-*r-a-u-t*(?)
in the presence of Arḫulini (?) saith, 'Our (?) . . . . Aḫunu will join (?) you (?)'

k ;-*m*(?)-*mu* *k e* : *t*(*a*)-*a* (*II* ?) ; *ar a m a mi* ? . .
I will go . . to . . . . . .

(3) : *mi-t*(*a*) . . 'ally'-*e* *ar-e* : *san-r-a* 'ally' *ID-I*(?)-*k-n*
With [thee ?] they are joining as allies: they will make alliance against a

m (?)-. . .-*e* : *Gu-?-ḫu-r* : *s-u* *k-a-ni-u* :
[common] foe. [The people (?) of] Gu-?-ḫur (?) have written (that) their friend

Kat(?)-*t-e* : *ID-k-n-s* : *mi-t* *m*(?)-. .-*e nis-e* ; *nis-u* ; *a-san-ni ID* :
is Katê(?). Against his enemy with the [people?] their sons (?) we have accepted (?)

Te (?) "*Tesup-id* (?)-*r* 'ally'-*k-ni-s* : *Nis-t-e*
as sons (?). Saith Benhadad unto his ally Nist

(4) "*B*(*a*)-*a-u-li nin* : 'ally' :-*ḫ* *b*(*a*)-*a* *mi-nis* "*B*(*a*)-*a-ṃi nin* : 'ally' 'ancestors'
son of Bauli, 'Make alliance with us': Bâmi son of the ally of

-? *kat-nis* *ar* : *t*(*a*)-*a* ?-? *san* : *ID-k-n*(*a*) *m*(?) . . -*e-n*(*a*)
[my ?] ancestors, 'Join us; against ?-?, the king, we will fight: our [people (?)]

m (?)-. .-*e-t*(*a*) (?)-*k* *m*(?)-. .-*e I*(?)-*k* : *Gar-a-li ni IX-a-e*
like thy (?) [people (?)], like one (?) [people (?)].' Ḳaral the son of the Nine,

: *a-u* ; *N-ka*
who [with] Nks

(5) . . . : 'ally' : *ar* : *a-ID* ?-*k-n-n-m* *k* ; *r-k-m-t*(*a*) :
joineth alliance, hath [graven (written)?] for my . . .: 'To come I [swear?] to thee(?)'

[1] Probably to be read thus.

[2] Doubtful: I have read the *s* as *ḫu*.

ID;-ḫi-c (or, *r-k-m t-c ID;-ḫi*) *"Kat-t-c ḫ* : 'ally' : *a-ḫ-mi* *r-k*(?)-*mi* : (title ?)-
Accepting (?) Katê, the chief, alliance I have made, . . .

B(*a*)-*nin*, *nin-n*(*a*) *n-m-n:-m-n* *c*-[*a*?] . . : *a-san*(-*n*) : *tc*(?)-*san-n*(*a*)
Banin (?), our son, my covenant [with ?] . . . hath made. We (?) have said (?)

? *Mu-tal*(?); *n-n*(*a*) ?-*r ID*(?) *Gar*-[*a-li*?] *ni IX*(?)-*a-c* : *t-c-r-a* . . : *k-a*-[*n* . .] :
Mutallu (?) . . . . . Ḳaral (?), son of the Nine (?) say . . . friends

a-san-u(?) : *san-n* : *ID-n-as-k-n-mu*
they (?) have made, we will make a throne for my sons (or variant as in M xxi, 4).

(6) Mutilated.

Notes. l. 1. *"Ḫu-nu*, § 12: on possible titles, § 73. The group at the end of the line is difficult, and might possibly be read 'ally'-*nin*(?)-*n-n*(*a*) 'our ally'.

l. 2. Tesup-mina, § 87. For *r-k-n* see notes to translation of M ii. Aninna perhaps Adinnu, § 87: the following phrase is difficult; perhaps read *A-nin-n*(*a*)-'place' :-*nis* : 'ally' *ar-u kat-e* of Adinnu, they are joining alliance with them (?): cf. l. 4. Perhaps we might see the word *mu-e* as in M xxi, 5 near the end of the line.

l. 3. The phrase *a-san-ni ID* is difficult, and possibly the reading of the hand-sign may not be correct: perhaps 'we have made alliance' is the sense. *nis-u* might mean 'their son', but the sense is difficult.

l. 4. *Kat-nis* looks like a form of *kat-n-s* 'us', the equivalent in M xxi, 2 being *ar-nis* 'join us'. Cf. l. 2, perhaps, *ar-u kat-e*, *kat-e* being some case of *kat-u*? Ḳaral, § 11.

l. 5. After *"Kat-t-e ḫ* less probably read :'ally' :-*a-ḫ mi-r-a*(?)-*mi*, i.e. 'Katê hath made alliance: before me,' &c. Cf. the phrase in M xxi, 4 'our throne for me'; but the words might be divided differently. For 'a throne for my sons' we should expect *ID n-as-k-n-m*(*u*).

M xxii, *from Mar'ash*. A sculpture of an alliance feast, two kings (one of whom is Tesup-k) facing each other at a table laid with flat bread.

Right side: *Te*(?)-*san Tesup-k a-ḫu*(?)-*k-nis* . . .
Saith Tesup-k unto his brother (?) . . .

Left side: . . . *Mu-tal*(??)-*n*(*a*) : *m*(or *kat*)-*m* *u* . . *m*(?)-*a*-? *Pan-mi s*(?)-*n*(*a*)(?) *a-b*(*a*)-*u*
i.e. Mutallu (??) . . . Panammi (?) the king (?) with them.

M xxiii, A, *a broken statue from Mar'ash*.

(1) . . . [*n-m*]-*ni-e* *Tesup*-[*r*]-*nis* *a-b*(*a*) ? . . *a-b*(*a*) . . ; . . . *u* . . .
. . . covenants of Tesup-ras (?) with . . . .

(2) *Aḫu*(??)-*u-nis* *n-m-ni-e* : *a-ṭ*(*a*)-*ir* ?-?-*li* *k-a-n*(*a*) ?;? *IX*(?)-*a-e*
Aḫuni (??) covenants hath given: ?-?-li (is) our friend: ? ? of the Nine

"Ir-r-a *a-ar* *a*(?)-*tal-li* : *ḫi*(?);-*e*
Irra hath joined (?) ?

(3) *Ir-ḫu(?)-li-mi-r* *a-ṭ(a)ir* " . . . . . : . . [*.te* ?]-*r-a* *ID* . . . *kat-s*
to (?) Irhulîna (?) hath given . . . have [said ?] 'A tablet . . . he

t-e(?) 'ally (?)'; *ar-*
saith (?) we will join

(4) *n(a)* ? *u* . . . *k* . . *k* . . *b(a) r a* 'god'
alliance' . . . . . .

Notes. l. 1. On Tesup-[ra ?]-nis, see M xi, 3 and notes to Hittite seals further on.

M xxiii, c. Copy too bad to translate, but see Sayce, *PSBA.*, xxv, 1903, 284. xxiv, A contains the group in M ii, 6. B contains the name of Gurgum. M xxv, a stela beginning 'Saith Ar(?)-mi' (Arame ?) mentions Gurgum in the third line.

M ii. A stela sculptured with representation of the god Hadad (Tesup), and inscribed with seven lines of inscription, which describes how the stela was made by various kings, among them Benhadad, and presented to Mutallu, king of Gurgum. Period, middle of ninth century. Found at Babylon, whither it had probably been carried as a trophy.

(1) : *Te*(?)-*a-san*(*n*) "*Ṭ*(*a*)-?-*ar-s* : *Mu-tal;-a-ḫ-s* : *bar*(?)-*k-n-s*
Saith Ṭa?aras unto his son (?) (*or*, lord ?) Mutallu, the great,

a-b(*a*)-*u-t*(*a*) *Tesup-id*(?)-*r-a-ḫ-s*
'Thy father (?) and Benhadad, the great,

(2) 'god'-*Tesup-s* : *kar-k-n* : *m-ni-u* *a-ṭ*(*a*)-*t*(*a*)
for the commemoration (?, glory (?)) of Tesup their memorial-stela have

san-n-zi t(*a*)-*k-n* *am*(?)-*zi* : *kar san-n-zi*
given thee. They made a feast (? ?), they (?) . . . , they made a commemoration (?),

: 'ally' : -*ḫ-n-zi* ?-*zi nin-zi*
they made alliance . . . as a son (?)

(3) 'ally'-*e-ni* : ?-*am mi-r-a-t*(*a*) *m-t-mi* : *u-ḫ-am-mi* : *Am-*[*r*]*-a-s* : *ID;-*
our allies {. . . in thy presence, *or* Pan(?)-am-mi thy *r-a*} with me hath . . . me. Amras the . . .

nin : 'country (?)';-*s* : *Am-r-a-s* : *ID;-nin*(*n*) : 'country (?)';-*s* : *Am-r-*
. . . of his country (?), Amras the wood of his country (?), Amr-

(4) -*a-s* : *ID;-nin*(*n*) : 'country (?)';-*s* *m-t-mi* *m-n-u-k-n-an* *a-ṭ*(*a*)-*t*
-as the stone of his country (?) with (unto) me for our memorial-stela gave.

Tesup-id(?)*-r-a-ḫ* 'god'-*Tesup-k* : *r-n-zi-t*(*a*) : *ID-n* : 'ally'-*e-ni* :
Benhadad (and) Tesup-k have [shared (?) for] thee the head (?), our allies

'engrave'-*r-a m-n-u-s*
have engraved

(5) : 'leg (?)'-*n* : *ID* ; *te*(?)-*mi* : *r-n-mi-n* : *Am-r-a-*
[the leg (?, base ?)] of the memorial-stela . . . [I have told my share ?] Amras

'engrave' *k-n-li-s* (or *k-li-n-s*) : ?-*ka ḫ-s-t*(*a*) : *Am-r-a-s* : *t-e* *k-n-li-s* (or
hath engraved ? thou shalt make (?) Amras hath said ?

k-li-n-s) : ?-*ka ḫ-s-t*(*a*) *mi-r-*
thou shalt make (?) Before

(6) *a-u* : *ID*; *a-ḫ-mi* : *ID*;-? *mi-t* : *Aḫu*(??)*-nis-ḫ-k-n* : *mi-r-a-an*
them [the shrine ?] I made ?-? (a chief) with Aḫuni (??) the chief in our

: *t-e* : *ID-n* : *r* (?)*-k-r t*(*a*)*-a* . . *Tesup-id*(?)*-r-a-ḫ-s* 'god'-*Tesup-s* :
presence said ["We (? will)] . . . a . . . that Benhadad the great may join (?) thy

ID-t(*a*) : *r-u* : *kat-s* : 'ally'-*ni-n*
inscription (?) of Tesup." He unto our allies

(7) *t-e* : 'tablet (?)'-? *ir-zi*
said "The tablet (?) . . ."

Notes. The figure of Hadad is noticeable because it carries the triple thunderbolt as in Assyria, but the Hittite hieroglyph for Hadad, probably the lightning flash, drawn in a zigzag, much as it is conventionally represented by ourselves (see footnote to § 1), is probably not Semitic in conception.

l. 1. I cannot identify *Ṭ*(*a*)-?-*ar-s*: it seems clear that the last character but one is *ar* and not *ṭ*(*a*) (cf. the sign for *ṭ*(*a*) in l. 2), and the first character is certainly distinct from the *ar*. Mutallu, § 31 : the position of the words 'unto his son (?)' is difficult, as they usually precede the proper name to which they relate: *bar* (?), perhaps Aramaic 'son' (?), § 89. but possibly Professor Sayce's suggestion 'chief' is right: nevertheless *a-b*(*a*)*-u-t*(*a*) seems to mean 'thy father' rather than 'with you', especially as the verbs in l. 2 are in the plural. Tesup-id(?)-r, § 33, *note*.

l. 2. *Kar*, as is mentioned in § 88, might be referred to an Indog. *kar-* 'praise', 'mention'. It occurs twice in this line, and again in M ix, 5 'a great tablet (?) : *kar-ni* (or *kar-u-ni*) (*u*)*ir-r-a* . . . of our commemoration they have joined' (?). On *m-ni-u*, *m-n-u*, see § 88: are we to see in the *-i-u* the distinction '*their* memorial'? *T*(*a*)*-k-n*, cf. TA. 4 *san-r-a t*(*a*)*-k-n*(*a*) 'they have made [a feast ?]': or should the words be divided *san-n-zi t-am*(?) *k-n-zi* 'they made . . ., they came'? *Nin-zi*, note to M ix, 4.

l. 3. 'Ally'-*e-ni* 'our allies', § 67, *note*. The fifth sign is doubtful, and gives cause to alternative translations. Amras may very probably be the same name as Amris (Ambaris), the king of Tabal in the time of Sargon, who was the son of that Ḫullî who was set on the throne of Uassurme by Tiglath-Pileser. If this be so, then our Amras was probably king of Tabal also, an ancestor of these, and since Lalli was king of Tabal at least between 854 and 837, we must count Amras, who was a contemporary of Benhadad, as the predecessor and perhaps father of Lalli. Noticeable is it on M xvi that Benhadad and three other kings invite (apparently) Lalli to alliance, calling him 'son of the ally of our fathers'. Amras provides the stone of his country for the stela, which is actually

of dolerite. Professor Sayce suggested 'stone', 'wood', 'brick' for the ideographs in this passage, and doubtless he was partly right. I am doubtful about my reading 'country', for the sign has taken a curious form, if correctly drawn.

l. 4. *M-n-u-k-n-an*, i.e. *mnu-kan-an*, § 33, *note*. *R-n-zi*, 3rd plur. impf. of √*r*, see note to *ar-nis* translation of M xxi, l. 2.

l. 5. *r-n-mi-n*, i.e. *rn-min* (?), accus. of a noun from the root *r* as in preceding note?

l. 6. *A-ḫ-mi*, also Restan 2, and perhaps M lii, 5, 1st sing. perf. from √*ḫ* ('great'). In the name *Aḫu*(?)-*nis* I have doubtfully suggested that the Hittites read their sign for 'brother' as *aḫu* (as in Assyrian, and as is apparently suggested by the causative formation, § 73 (*a*)). But the proper form in Hittite for the name Aḫuni, the chief of Bît-Adini is apparently Ḫunu, Ḫuni (M lii, 1, *note*); and yet possibly a similar form to *Ahu*(?)-*nis* occurs on M xxiii, A 2 (q.v.) as *Aḫu*(?)-*u-nis*. *R-k-r*, apparently √*rk*+*r* (impf.). The root *rk* occurs possibly in *r-k-r*, M xi, 5; in *r-k-n*, M lii, 2 (. . title (?) *B-r-k nin-u an-n*(*a*), *Tesup-mi-n*(*a*) *r-k-n* ?-*B*(*a*)-*nin*, &c. . . . 'Bark, we are adopting as our son: Tesupmina we *rk*(?), Banin,' &c.): similarly *r-k-n-t*(*a*) 'we *rk* thee' (new Jerabis); *r-k-n*(*a*) in M viii, B, 4 (?): *r-k-m-t*, M lii, 5, I can only suggest that it may be the impf. of the root from which *ar-k* 'to swear (?)' comes (§ 88, and the translations of Restan 2, and M v, vi). On *r-u* see note to *ar-nis*, translation of M xxi, l. 2.

M xvi, A, *the slab from Malatia* (*Milid*): sculptured with two men in a chariot hunting a lion with a dog: apparently imitated from the style of Aššur-naṣirpal. (See § 87.) Date, second quarter of the ninth century.

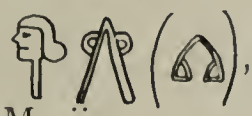
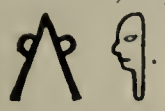
(1) *Mi-ni-a* *Ir*(?)-*ḫu*(?)-*li-e-ni* (or, *Ir*(?)-*ḫu*(?)-*li-ni-s*) *Tesup-id*(?)-*r* "?-*s* "?-*s*
We Irḫulîna (?), Benhadad, ?-s, ?-s

te(?)-*ḫi-u* (or *ir*) *T*(*a*)-*bal*-'place'-*ma ni-ni* :'ally':'ancestors'-*ni*
send a message to (*or* greet) the lord of Tabal, the son of the ally of our ancestors,

(2) *Lal*(?)-*li*(?) 'ally'-*n*(?) :'ally':-[*ḫ*] *b*(*a*)-*a mi-ni-s*(?)
'O Lalli (?), our (?) ally, make alliance with us.'

Notes. l. 1. On the first part of l. 1, and the two parallel inscriptions (M xvi, C: Sayce, *PSBA.*, xxvi, 1904, 23), see §§ 18, 19: the texts of these two latter give in a similar (incorrect?) form the name which I have ventured to emend to Irḫulîni (?), and the chiefs Gu-am (Giammu), Ar-am (Arame), and some names which I cannot read. Certainly the text in *PSBA.* is another suggestion for alliance. On *te*(?)*ḫi* see § 73. I have suggested Tabal as the equivalent for  (there is no question about this reading from a comparison of the photograph and the same place-name on a new Jerabis text); we know that the first character is *t*(*a*), the last character is the determinative for 'place', and Tabal is a well-known district in the region north-west of Assyria, near Malatia, in the cuneiform texts. If this is correct we must see Tabal as the region of which Malatia (Milid) was the capital. On the latter half of l. 1, see § 50.  (*l*)[1] for which I have suggested *Lal*(?)-*li*(?), Lalli being king of Malatia at this period: the sign  (*lal*?, *la*?) is not common, except on seals, where it occurs so frequently as to suggest that it has the ideographic value 'seal' (certainly on M xl, 14, 18: xli, 2, 9:

[1]  *li* is fairly plain on the photograph (*Recueil*, xvii, 25).

xlv, 6, 7: and perhaps on the 'Tarkondemos' Boss, M xlii, 9). This, however, may be only a coincidence: it occurs otherwise in a name  (M xxxii, 2, 4), and in M xxxv (Sayce's corrections) appears what must be a name  , which also occurs (?) in M lii, 2, where we find  . The character also occurs in M xii, 5.

Now in the event of  being the equivalent of 'seal', inscribed on the seals above the name of the owner, we should see *lal* in the cuneiform with such a meaning, but the few instances which I can find are by no means certain. (Al. *r.* 1) (so many) *GIŠ . ŠE ša-ar-ra-aš ina šum ab-bi GIŠ . UŠ IV I* (? possibly *ma*)*-wa la-li-ia* ^{alu}*Da-bi-il*, &c.: (C i, 15) *Ma-a-an LUGAL-uš* ^{alu}*A-ri-in-na-az* ^{alu}*Ḫa-at-tu-ši-pa-iz-zi nu* ^{amel}*GIŠ . PA la-li zir-ri-di-iš-ša-an ḫal-za-i-kiš* (?): cf. also the causative from *lil*: (A ii, 10) *nu-uu* ^{m}*Lab-ba-ia-an EGIR-pa ḫat-ra-a* [*i*]*š-t*[*u*] *amel aš-šu-ui-ia li-li-wa-*[*a*]*ḫ-ḫu-u-an-zi*, and (A i, 14) *nu-uš-ši li-il-ḫu-wa-i NI-an SAG . DU-ši*. The first mentions 'in the name of my father' followed by *lali-ia*: the last suggests 'sealing oil for her for her head'. But the whole matter is doubtful.

M xvi, B. An alliance-feast scene from near Malatia, with part of a hunting scene similar to the above. The inscription on the hunting scene begins *mi-* 'I am' . . .; the name over one of the kings feasting is *A-?-mi-s* (Arame??).

(B) The Irḫulîna Inscriptions.

The Hamath inscriptions: date, middle of ninth century. M iii, B, *found at Hamath*: from Irḫulîna to 'the chiefs of the king', recording an alliance.

(1) *Te*(?)*-san* *ḫu:-an san-s* ^{n}*Ir-ḫu-li-n*(*a*)*-s* :'ally':*-ḫ mi-*[*n*]*-s*
Saith Irḫulîna unto the chiefs of the king, 'Make alliance with us.'

[*Am-ṭa-a-ḫ-*'place' 'lord'*-t*(*a*)*-a*]
[To (?) the lord of Hamath, the great]

(2) [*te*(?)*-b*(*a*) (or *ir*) ?*-e*-?] *mi-t* 'place';*-e-ḫ* *nas-mi* ^{n}?*-r-an-a-ḫ-s-*
[?-e-? hath said] 'With the chief (?) of the lands I will . . . (?) the

'place' 'place'*-ḫ-an-n-s*
town of ?-ran, the great, our great city.'

(3) *kat-mi* *n-m-n-an* 'engrave' *e-a Tesuḫ-id*(?)*-r-a-ḫ m*-place (?) . . .
I our covenant am engraving with Benhadad the great . . .

M iv, A, *found at Hamath.* Similar to the above, except the change of two names.

(1) *Te*(?)*-san* *ḫu;-an san-s* ^{n}*Ir-ḫu-li-n*(*a*)*-s* :'ally':*-ḫ mi-n-s*
Saith Irḫulîna unto the chiefs of the king, 'Make alliance with us.'

Am-ṭa-a-ḫ-'place' 'lord'
To (?) the lord of Hamath the great

(2) *-t(a)-a te(?)-b(a)* (or *ir*) *?-e-? mi-t* 'place' *;-e-ḫ nas-mi "Ar(?)-man(?)-*
?-e-? hath said, 'With the chief (?) of the lands I will . . . (?) the town of

a-ḫ-nas-e-a-'place' 'place'*-ḫ-an-nas*
Arman (?), the great, our great city.'

(3) *kat-mi n-m-n-an* 'engrave' *e-a Tal(?)-ḫ Am-s-*'place'
I our covenant am engraving with Tal(as ?) the chief of Homs (?)

M iv, B, *found at Hamath.* Similar to the above, except the change of a name.

(1) *Te(?)-san ḫu:-an san-s "Ir-ḫu-li-n(a)-s* :'ally' *:-ḫ mi-n-s* .
Saith Irḫulîna unto the chiefs of the king, 'Make alliance with us.'

Am-ṭ(a)-a-ḫ-'lord'
To (?) the lord of Hamath the great

(2) *-t(a)-a te* (?)*-b(a)* (or *ir*) *?-e-? mi-t* 'place' *;-e-ḫ nas-mi B(a)-s-ḫ-r-*
?-e-? hath said, 'With the chief (?) of the lands I will . . . (?) the town of

a-ḫ-nas-'place' 'place'*-ḫ-nas kat-mi n-m-n-an . . . . . .*
Tel Bashar (?) the great, our great city.' I our covenant (am engraving with So-and-so).

Restan (Sayce, *PSBA.*, xxxi, 1909, 259). From Bar-?-s to Irḫulîna, recording an alliance.

(1) *Te(?)-san "Ir-ḫu-li-n(a) Bar-?-s* [:'ally' *:-ḫ*] *b(a)-a mi-n-s Am-ṭ(a)-a-ḫ-*
Saith Bar-?-s unto Irḫulîna, 'Make alliance with us.' With (?) the

'place' 'lord'*-t(a)-a*
lord of Hamath the great

(2) *mi-n(a) ID-san-n(a) te(?) ?-e-? mi-[r]-a ID*
we have accepted (?), we have signed (?). ?-e-? hath said 'Before the altar

a-ḫ-mi 'god'*-r-e ar-k-mi ?-?-e-t(a)*
(which) I made by the god(s) I have sworn (?) thy pledges (?)'.

M vi, *from Hamath.* This begins in the same way as the Restan text, but the remainder is much mutilated. L. 2 has apparently the name *Kat-t-e*, and ends with *n-m-ni-e mi-r-a ḫ;-s-n(a)* 'god'*-r-e ar-k-ni ?-e-?* (3) *a-u* 'god'*-r-e ar-k-n-as Pan-am-mi e(?)-li(?) ?-mi ?-e-mi K-r-a-u-ḫ*, &c., 'covenants before his chief(s) by

the god(s) we swore: ?-e-?, who by the god(s) hath sworn to us (and) Panammi ... Kirrî, the chief,' &c. There is a possibility of Bark's name in l. 4: on *Li'urnu* (?) see below. M vi is continued by M v:—

(1) ... 'god'-*r-e* *ar-k Ir*(?)-*r-a* 'god' 'tablet'-*mi te*(?)-*san-mi ID-k-mi* ?-*e* ...
... by the gods Irra(?) hath sworn 'By my god X I promise I will fight.'..

(2) ... *an mi-e-a* *ID-mi* ?-*an* 'engrave' "*Li*(?);*u-r-n-u* *ir*-?; *ir* ?-*r*
... with me; I have signed (?) our... Li(?)'urnu hath engraved ? ?

(3) ... *u an e-a* *ḫ*(?); *ka mi li na mi-t ḫ*(?); *ka nas* ? ?
with us (?) ... with ...

(4) ... *u* 'god'-*ḫ-u* "*Nis-t nis*(?)-*u te*(?)-*r-a* *te*(?)-*san-mi* *ID-mi* ...
... by our great god, to Nist their son (?) they have said, 'I promise I will sign (?)' ...

NOTES. It will be seen that these inscriptions are either to or from Irḫulîna, who was ruler of Hamath in the middle of the ninth century. The opening phrases present several problems, notably the explanation of the preposition *ta*. As will be seen, in the first three the *b*(*a*)-*a* 'with' is lacking before *minis*, but it is put in in the other two: and although we might assume the translation of the first three to be 'Said Irḫulîna to the chiefs of the king, "Make alliance with us, the lord of Hamath the great,"' it is impossible in the other two texts, unless we consider that Irḫulîna is again the nominative which is contrary to the case-endings. I cannot do more than to leave the matter doubtful: possibly M vii might throw some light on it, as the text actually runs: 'ally' :-*ḫ a mi-nis t*(*a*)-*a*; but the lost *b*(*a*) may be merely a scribal error. 'Against' (§ 80) would demand historical confirmation.

For *e ḫ nas mi*, cf. M xlvi, which begins *mi-a e-ḫ-nas-mi ID-k-m*, but it does not seem probable that we should have a proper name in the Hamath text here. Moreover, a verb (?) *našta* occurs in Hittite cuneiform: *EGIR-an-ṭa na-aš-ta* ^{am}*ḫa-lu-ga-tal-la-at-ti-in am-me-el-la* 'thereupon thou didst ... thy messenger ...' (A i, 18).

The name of the town *-ran* should give the syllabic value for the first character, but I know of none to fit, except Harran, which is not likely. The character may perhaps be seen in the chief's name in M vii. The parallel places in the two similar inscriptions are Ar(?)-man(?) (=Aleppo?) and Basḫar, which might be Tel-Bashar (see my article *PSBA.*, xxxiv, 1912, 70). In M iv, A, 3, Tal may perhaps be compared with Talas of the Carchemish texts. In Restan 1 I cannot identify *Bar*-?-*s* (see § 73): on *mi-n*(*a*) see § 75. The ideogram which I have translated 'altar' has something of the appearance of certain large stones found near Hittite sites, with cavities hollowed in the surface, which might perhaps have been altars. On *ar-k* see § 88: on 'pledges (?)', § 67.

Li(?);-u-r-n-u, which seems to have every indication of being a proper name, both from its syntactical position and the tangs on two of the characters composing it, occurs again similarly in M vi, 4: and it exactly coincides with the name Liburna, occurring also as Lubarna, a king of Patinai, in the cuneiform inscriptions of Aššurnaṣirpal. A Lubarna occurs also as king of the Patinai in the later years of Shalmaneser: and since the Patinai are included in the Hittite coalitions of his earlier campaigns, we may at once consider that there is some evidence for regarding the Hittite Li(?);-urnu as the same as the Liburna of the cuneiform. *Li*(?) backwards appears to call attention to the proper name.

In this case we come to the interesting equation for the sign which I have represented as ';' throughout this article, that ';'=the Assyrian *b*, or quite probably something like a digamma or *w*. An examination of its occurrence in the grammatical phrases of the hieroglyphs shows how probable this is:—

(1) The probable equivalence of *gu;-a* (M 1) [and *gu(?);-e-u*, M vii, 2 ?] with *gu-'m-a* (M x, 6), and *gu-'m-n(a)* (M xxxiii, 2), is so far evidence that '*;*' may be the variant of *m* (= *w*).

(2) In M x, 2 *ḫu* is used for a plural of *ḫ* in *ḫu IX* 'chiefs of the Nine' (cf. ll. 4, 6). But we also find *ḫ;n-as IX-a-e* followed by *ar-e* (a plural participle ?), M lii, 2 (the form occurs apparently in M xxi, 4) while the singular is undoubtedly *ḫ IX(?)-a-e*, M ix, 5. This would certainly add evidence to the view that '*;*' = *u* (*w*).

(3) Additional possibilities may be found in the name ?-*;B(a)-nin* for which I have hazarded the comparison Ilu-ibni, a very doubtful point (M lii, 2, § 41, *note*): *Mu-tal;* (= *Mu-tal-w* ?, § 31): *Bar-ḫi;* or *Bar-ḫi* simply (for Bar-Ḫayâ ?, § 73).

(4) Hittite cuneiform shows (1) a final *wa*: (2) a medial *wa*. The instances of (1) point so much to the *wa* in these cases being a separate particle (*a-ḫa-ti-wa* Al *r.* 19, *a-pa-a-aš-wa* Y 29 alongside of *a-pa-a-ša* Y 16, 20, *a-ut-ti-wa* Y 42, *i-id-din-wa* Y 21) that it is better to draw our evidence from (2) where there is less confusion. Cf. *a-na ab-bi-ma*(=*wa*)*-at-ta-an* ('unto thy fathers ?'), A ii, 5, *kab-bu-wa-at-tin* Y 19: particularly in *u-nu-te-es* beside *u-nu-wa-an-ta* in *a-na I GIŠ BANŠUR . . . ki-i u-nu-te-eš ṭa-a-i* (Y *r.* 26) and *I GIŠ BANŠUR u-nu-wa-an-ta a-na AN . UT ṭa-a-i* (Y *r.* 34) 'Give (up) to one table . . . as thy (?) *unu*' and 'Give one table as thy *unu* to Shamash.' Still more noticeable are the forms *ḫu-(u)-i-b(m)a* (D 14 : E 12), *ḫu-i-b(m)a-an-ṭa* (D 19), *ḫu-wa-an-ti* (Y 9), *ḫu-u-ma-an* (A i, 6, 7, 10 : Y 8 (?), 15), *ḫu-u-ma-an-ṭa* (A i, 26), which are all from the root *ḫ* 'great'. It seems not improbable that this inserted *wa* indicated a plural sometimes, and the two forms *šu-un-ni-wa-an-zi* (K 4) and *šu-un-ni-an-zi* (K 5) seem to show that it may be inserted or left out at pleasure in this case at least. The forms *tu-el* (Y 2, 10), *u-it* (A i, 24), *ku-in* (A i, 13 : Y 7, but cf. *ku-wa-bi* Y 25, *ku-wa-bi-ia* Y *r.* 26) show that a digamma is not needed in these cases.

The sign '*;*' is so often represented after an ideogram that there is much reason in the explanation of Peiser that it marks an ideogram, or of Sayce that it marks a plural. But M xxi, 2 apparently shows an instance where it begins a word.

(C) The Inscriptions from Carchemish: about the middle of the ninth century.

M ix. A broken inscription containing details of an alliance, mentioning Shalmaneser (?), Panammi (?), Targu-ras, Talas, Katê, and Bat.

(1) *Ze(?)-a-san(n)* . . *-a-s* *ⁿSul(?)-man(?) san Nin-mi-s-*'place' 'country'*-s-ma*
Saith . . -as : Shalmaneser (?), king of Nineveh, the lord of lands,

'god'*-ḫ-k* *ⁿPan-mi san-s a-b(a)* . . .
like (by) a (the) great god : Panammi (?) the king with . . .

(2) . . . *san-t(a) ma-ḫ-n(a)-nis* 'god'*-Targu-r-s ⁿSul(?)-man(?) san Nin-mi-s-*'place'
. . . son (?) of our great lord, Targu-ras, Shalmaneser (?), king of Nineveh,

ḫu-'chief' *ⁿTal-s* 'ally' *;-k* : *ID-u* *a-b(a)-t(a)* *san-m-*
chief of lords (and) Talas as allies have accepted. With thee I will do

(3) *t(a)* *nis-ḫ-m-t(a)* : *ḫat(?)-r-s u-b(a)-r-a-t(a)* *nis-zi*
it (*or* act with thee) : I will make sonship with thee : . . . will take (?) thee as a

mi-t : mi : 'ally'-*u-ni ir-r-a-t(a)* 'ally'-*zi-t(a)* : ?-*e-s-k mi-ni . . san . . .*
son with me: our allies will join thee in thy alliance: ?-esk we will accept . . .

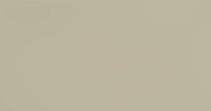
(4) . . . *a-an-t-mi* : *Kat-t-e : nis-e* *a-an-t-nin* *B(a)-t nis-e*
. . . [as a son] hath counted me: Katê as sons hath counted us: Bat as sons

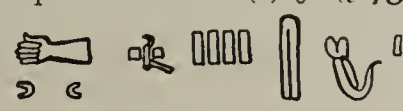
a-an-t-nin : ?-a ar-e *Kat-n-a-u-t* 'god'-*Targu-r-zi : "Sul(?)-man(?)*
hath counted us: . . . the Ḳatnai are joining (?) with Targu-ras, Shalmaneser (?)

(5) *san Nin-mi-*'place'-*zi ḫu-*'chief' *"Tal-zi* : ?-*ḫ* : *ḫ IX(?)-a-e*
king of Nineveh, chief of lords, (and) Talas. . . . ?, the chief, a chief of the

a-k-t *r-s-t(a) ?-k-ni* 'tablet'-*ḫ*
Nine (?) hath come: he will join (?) thee (?) against our enemy: a great tablet (?)

: *kar-u-ni ir-r-a . . k . . . :*
of our commemoration (?) they join (?) . . .

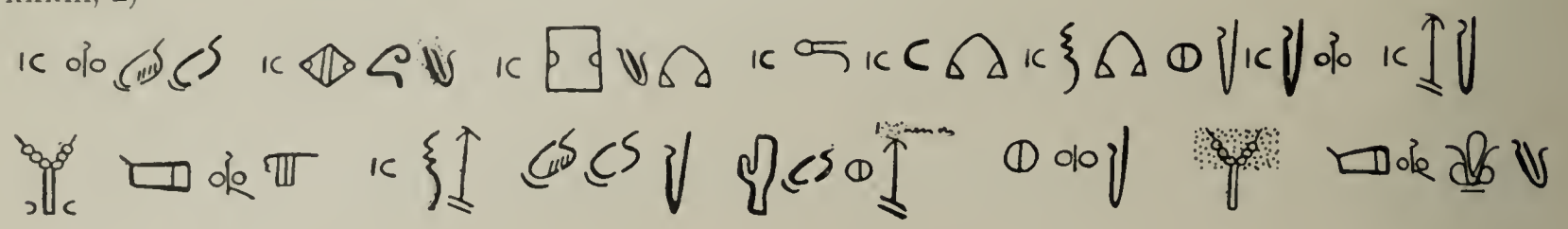
Notes. l. 1. The name of the writer may possibly be a form of that which occurs on a new Jerabis inscription  ?-*as*, but I do not think it likely. On Shalmaneser, § 51. It seems possible that the 'great god' may be an expression for the Sun-god. Shalmaneser, in his inscriptions, calls himself 'king of multitudes . . . the Sun of multitudes' (Ob. 15 ff.: Mon. i, 5: but cf. M xxi, 3). On the possibility of *Pan-mi san-s* being the same as *Pan-am-mi san* see § 56. By the time that this inscription was written Kalammu bar Ḫayâ had presumably been helped by the Assyrians, and Panammi had become a friend of Assyria also.

l. 2. On *ma-ḫ-n(a)* 'our great lord' see § 44. Talas may be the chief of Am-s, i. e. Homs (?), M iv, A, 3. The ideogram of a closed hand appears to mean 'to accept' especially in alliance or adoption. It occurs particularly noticeably in the epithet of Bar(?)-ḫi (§ 73) 'his accepted (adopted) brother'. We find it once in a new Jerabis inscription  *ID; a-san-n-zi*: 'they have accepted'. For the phrase 'I will act with thee' (or similar), see TA 4: for 'I will make sonship', § 73. On *ḫat-r-s* see § 92. The word *u-b(a)-r-a-t(a)* is difficult; it occurs once again on a new Jerabis inscription as a verb undoubtedly, of the form *u-* (§ 72). The problem is to discover the root: is it *b(a)-r* [which I admit is tempting from its apparent similarity to the Indog. *bhéro* 'to bear'], or is it simply *b(a)*? The pros and cons appear to me to be as follows:—

U-b(a)-r-a-t(a) [like *ir-r-a-t(a)*?] may be of the form *t-e-r-a* (the root with *r-a* added for the plural), and if we are to see a plural (or collective) in the two nouns which precede each, then the question of root is practically solved. Now the root *b(a)* (or *b(a)-ir*) is found with and without the augment *a*, and, as in the case of *u-b(a)-r-a-t(a)*, the meaning appears to be certainly 'bring', 'take'. I believe, however, that any Indogermanic comparison would be misleading, and that we must see in it the root *b(a)*, more particularly because of the common root *pa* in Hittite cuneiform, which apparently means the same. It is peculiarly strange that no discovery of a sign for *p* in the hieroglyphs has resulted from our investigations: and it is certainly noticeable that the number of roots in Hittite cuneiform which can be definitely stated to be spelt with *p* is (as far as the texts published up to now show) exceedingly small, and, if we except proper names, can probably be reckoned on the fingers of one hand. But there is one such root which is very frequent in its forms, the root *pa*, in which I am much inclined

to see our root *b(a)*, on the assumption that the sign for *b(a)* could be used for *p(a)* on occasion (like *bu* and *pu* in Assyrian). If the occurrences be compared, the meaning will be obvious:—

(M xxxiii, 2)

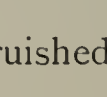


= : a-b(a)-ir : gu-'m-n(a) : 'tablet'*-n(a)-s :* 'ally'*:-ḫ-s : tc*(?) *s-c-t(a) : t(a)-a : mi-t* 'wood'*; "Ṭ(a)-a-nas : tc*(?)*-mi b(a)-ir-t(a) ḫat*(?)*-ir-c-mi:c-a-t(a)* 'wood' *"Ṭ(a)-a-nin-n(a)* 'Our tablet of making alliance bringeth a gift (?): thy letter did speak concerning (?) Tyanian wood. I have commanded (that) my . . . (?) should bring (it) thee; with thee is the Tyanian wood!' (or similar translation, see translation to M xxxiii). *A-b(a)-ir* occurs again on l. 7, and in M xxxii, 2, 4.

In cuneiform we find the following forms: *pa-i-mi* Y 43: *pa-at-ta* C ii, 2, *pa-a-at-ta* C ii, 6: *pa-a-it* Y *r.* 10: *pa-it* F, 2: S i, 10: Y 16: *pa-a-u* Y *r.* 12: *pa-u* Al. 11: *pa-iz-zi* F 1, 3: L 3: S i, 12: Liv. i, 13: *pa-iš* Y 11: *pa-a-ir* Y 22: Z ii, 9: *pa-a-un* W 19: *up-pa-aḫ-ḫi* A i, 18: *up-pa-(aḫ)-ḫu-un* A i, 15, 28. The meaning appears in Y *r.* 12 (Such-and-such) *pa-a-u ku-iš [am]muškinu nu-ut-ta I LU pa-a-u* '. . . bringeth; as a gift (?) a poor man to thee I sheep bringeth', and W 19 *nam-ma i-na mâti ali mi-ra-a pa-a-un* 'I brought *namma* (a covenant?) into the land of Mirâ (?)'. The causatives in A i are also translated similarly.

I am therefore inclined to eliminate the possibility *b(a)-r*, and see only *b(a)* = *pa* as the root. (For *gu-'m-n(a)* see notes to the translation to M 1, p. 123.)

l. 4. *A-an-t-mi*, § 32. *B(a)-t* occurs TA 5. The translation is difficult: the phrase 'to set (*an*) as a son' occurs on TA 4 and perhaps M x, 6: 'to set as an ally', M xi. 2. The *Kat-n-a-u-t* are, I presume, the tribe of Ḳatnai, east of the Euphrates, to the south-east of Bît-Adini.

l. 5. I cannot suggest anything for the chief's name, but see notes to M viii: for the abbreviation for the Nine see § 64. *A-k-t* is the perfect of the root *k* 'to go'. On *r-s-t* see translation to M xxi, note on *ar-nis*. The sign  , indicating 'fighting' or 'hostility', is to be distinguished from  , particularly in M x, and may be exemplified by the following quotations:—

 appears as an epithet after two chiefs' names in M x, 4, 6; and also with the prepositions *k-n* (*ID-k-n-m* 'for my enemy', l. 7, and *k-ni*, as here) and *a-b(a)* (l. 8); while in the line preceding *a-b(a)* is used before 'ally'. This would appear to fix its meaning as 'enemy', and we can apply it to the other cases: (TA 3) *s-r-a ID : I-k-n-m : k-mu c-a-t(a)* 'They have written, "Against my (? or should it be emended to *n*, 'our'?) common foe I will go with thee"': (TA 4) *s-r-a : kat-n : t-c : I; ID-a-ar* 'They have written, "We are of one speech (or intention) against (?) a foe"': (TA 5) *: kat-n : I ; ID-a-ar* 'We are one against (?) a foe': (M lii, 2), various chiefs of the Nine *: t(a)-a ID : N-ka : A-nin-n(a)-*'place' *: nis-u :* 'ally' *ar-c* 'against the enemy of Nks of Aninna (Adinna), their son, have joined alliance': (*ib.* 3) *: san-r-a* 'ally' *ID-I*(?)*-k-n* 'they have made alliance against a (common?) foe'. A new Jerabis inscription gives  *: k;-a-mi t(a)-a ID T(a)-bal-*'place' 'I will march against an enemy of Tabal'. (I have accidentally drawn the foot the wrong way round.)

On the other hand when  *k* is added, a verb appears to be intended. (M v, 1) 'god'*-r-c ar-k Ir*(?)*-r-a* 'god'*-?-mi tc*(?)*-san-mi ID-k-mi* 'Irra (?) hath sworn (?) by the gods, "By my god . . . I have promised I will fight."' A similar phrase occurs in M xxi, 4, 7. M x is full of indications of its meaning (see the next translation); *ID-k-m* 'I will fight' occurs in M xii, 1, 2 and 3, 2. M lii, 4 gives *: t(a)-a ?-?san*

: *ID-k-n(a)* 'against ?-?, the king, we will fight.' [The  *k* may possibly be dropped in M lii, 3 *nis-u* : *a-san-ni ID*, but the sense is difficult, and not much stress can be laid on this, for the words suggest an emendation of the copy in Messerschmidt to the 'hand' (alliance) sign.] The meaning for  is probably, as Professor Sayce suggested, 'a tablet'; certainly M xxxiii, 2 bears this out (but see p. 74, *note*): possibly *kar-u-ni* is 'our commemoration, record' in accordance with the root *kar* discussed in the notes to the translation of M ii.

M x. A stela from Carchemish, with a figure of a king in high relief holding a staff. From the translation given below it appears to be an inscription from Shalmaneser (?) 'the king of Assyria' to Targu-(ras), (king of Carchemish ?), treating of alliance.

(1) *Te*(?)-*ḫi Sul*(?)-*man*(?) *san As-ir-*'place'-'country' 'country'-*ma* 'god'-*Targu*
Shalmaneser (?), king of Assyria, lord of lands, sendeth a 'brotherhood'-*san*
message to (greeteth) Targu(-ras ?): 'Make (*or* making) brotherhood

(2) *a-b(a)* *san(n) ID-k S-s-*? 'god'-'sun'-'king' *Bar*(?)-*k*
against (with) one making war(:) against Sas- . . ., (and) [Šamaš-šarri, Chemosh-
ḫu IX-zi
melek] (and) Bark (?), the chiefs of the Nine,

(3) 'god'-*Targu* 'ally'-*mu* ?-*n-t(a)* *ID* . . .
Targu(-ras ?) is my ally; ?-nt (is) a foe . . .

(4) . . . *ID-k san-n* ?-*ar* *ḫ IX ID*
[with him] we will fight (*or*, do thou fight): ?-ar, a chief of the Nine (is) a foe:

(5) 'brotherhood'-*u IX* *kat-t(a)* [*a*]-*b(a)* . . *kar*
the Nine have made brotherhood. Do thou with . . . a commemoration (?)

(6) *san-m* : *nis* : *a-an-zi* *M*-?-*k-k* *ḫ IX ID* *gu-'m-a*
make (for) me. They have set as a son M-kak, a chief of the Nine, a foe. Gifts

(7) *li-an a-am-s* *ID-k-n-m a-b(a)* 'ally': . . .
[between (?) us (?) have been (?) exchanged (?)], (so) against my enemy with alliance (*or* with friend) . . .

(8) . . . *a-b(a) ID* : *ID-k san-n*
[let us join]: with a foe we will fight (*or*, do thou fight).'

NOTES. l. 1. *Te(?)-ḫi*, § 73: *As-ir*, § 51. As far as can be seen in this text, which is written in an abbreviated fashion, 'Targu' is an abbreviation for the Targu-ras of the other Carchemish inscriptions; at any rate it obviously cannot refer to a god here. This hieroglyph of making blood-brotherhood occurs in this text only, as far as I know: there is a shortened form (see sign-list, no. 82): it is difficult to see whether it is an imperative, participle, or even finite verb.

l. 2. *Ab(a)* is almost certainly 'with' from § 40, but l. 8 shows the meaning 'fight with'; the sense of l. 2 may be either 'Make alliance together with any one making war against XX', or 'Making alliance against any one hostile, (namely) XX'. *S-s-*? is a difficulty; the last character occurs in M xi, 4 where the group may be a name *?-an-ni* (see translation to M xi). 'The-Sun(?)-is-king', the equivalent of so many Semitic names, occurs (?) on TA 4, where he is apparently the ruler of Amḳ.

l. 3. The group at the end of this line is apparently a name ending in *-n-t(a)*; its first character occurs as an ideogram (?) in TA 4, 7, 8. The only name in the Assyrian texts which I can find at all comparable is Bur-a-na-te of the Yasbuḳai who joined the earlier coalition against Shalmaneser in the time of Sangar (§ 24), but as he was captured, it is unlikely that this is his name. Hence there is no probability that this character reads *bur*.

l. 4. I cannot identify this chief's name. For *kar san-m*, see the notes to M ii (p. 111): it may be either 'I will make a commemoration', or 'do thou make for me'.

l. 6. For the chief's name cf. M xi, 5. *Gu-'m-a*, notes to translation to M i (p. 123).

l. 7. *Li-an a-am-s*, a difficult phrase. *Li* occurs in M xxxiii, 1 and the Bogtcha stela (which must probably be thus emended) '... greeteth *li-n s-t(a)* "Make alliance with us".' Are we to translate this *li-n s-t(a)* 'unto us thou didst write', seeing in the *li* the postpositive preposition *-l* so common in cuneiform? [Examples are: Many cities names in C 1, e.g. ^{alu}*Ia-ti-il*: *tu-el* (2nd pers. pl. of the pronoun), A i, 24, Y 2, 10: D 5: *u-ul* (3rd pers. pl.) A ii 4, 6, 8: Y *passim*.] *a-am-s* (also M xxxiii, 4) should clearly be an augmented tense of the verb, but I cannot offer any suggestion for the termination *-s* unless it be that of a middle or passive voice, as is suggested by *r-s-zi* 'they will join' middle voice from √*r*? See notes to translation to M xxi and the possible form *san-n-st(a)* (§ 69); *a-am-nis* occurs on M vii, 2, where 'have exchanged (with) us' (or similar) is a possible rendering.

M xi. A column from Carchemish; of which one semi-circumference is engraved, the other apparently having been shorn away to make room for a full-faced carving of a Hittite (?) figure (god or king) with the distinguishing guilloche below. It is possible that later inhabitants of Carchemish, having no respect for the ancient mention of Assyria or alliances therewith, used the column, which came as a present from some 'Assyrianizing' king, for their own purposes.

(1) (Mention of *Targu-ras*.)

(2) ... *ḫ*(?) *k*(?) *san-e* *a-b(a)* : "*Pan-am-mi* *Bar*(?)-*ḫi* 'swear'-*zi* ?-?-*e*
... ... kings, with Panammi (and) Bar-Ḫayâ(?) have sworn the pledges (?)

"*Sul*(?)-*man*(?) *san As-r-a*-'place'-'country' 'ally'-*zi* *a-an-zi* 'lord'(?)-*m*
of Shalmaneser (?), king of Assyria; as an ally they have set [my (?)

n(a)-zi *n-m-n-e* "?-?-*r-a* *nis-n(a)*(?)*n e* ...
lord (?) with (?) us (?)]: the covenants of ... ra (a chief), our (?) son, ...

(3) ... *Targu-*[*r?*]*-ni* "*Sul*(?)*-man*(?) *san Nin-m-*'place' *ḫu-*'chief' *Man*(?)*-am-*
... Targu-ras, Shalmaneser (?), king of Nineveh, chief of lords, Manam (?),
s-ḫ *Tal-s* *Kar-s-am-mi* (or *Kar-am-mi-s*) *nis* *?-m-e* *n-m-n-e* : *a-t*(*a*)
the chief, Talas, Karsammi the son of ?-me, covenants have given:
'lord'*-m* *?-a-e-m* *ma-m* *te*(?); *?-zi* *t-u-zi* *k-k* ...
[my lord(?), ..., my master] saith '... with you go ...'

(4) ... *s san-zi ID-ḫ* 'swear' *Ar-am ḫ K-as-k mi-r-a*
... they have made [..., the chief]. Aram, the chief of Kaški, hath sworn before
'god'*-ḫ* *kat-s* *?* *nis-k* *?* *b*(*a*)(?) *ni* *n*(*a*) *k nin* "*K-r-a-ḫ*
the great god (that) he ... , ... Kirrî, the chief,
ID; *kat-n* "*Bar*(?)*-k-ḫ* *a-t*"
hath sent a runner (?) (that) 'We (and) Bark, the chief, have spoken (?) with
"*?-an-ni* *kat-s* *Man*(?)*-am* ...
(*or*, the father of) ?-anni: he (and) Manam (?) ...'

(5) ... *kat ID-ḫ* *n-m-n* *K-r-a-ḫ* : *mi-ni* : 'swear; '*?-u*
... [..., the chief] the covenant of Kirrî, the chief, hath accepted(?). ?-u
kat-s *Mi-?-k-k* : *te*(?) *r-k-r a-u* (numeral) 'tablet' *Tal-as*
hath sworn (that) he (and) Mi-?-k-k (*or* Mi-? will come) ..... Talas
U-s-Targu-nis : *ID* *ka-s-t*(*a*) *a-t*(*a*) *?-e* 'brother'*-zi* .. *e* ..
the son of Us-Targu, a feast (?) ... they have given ... as a brother ...

NOTES. l. 2. On the beginning, see § 52. For 'they treat as an ally', cf. M ix, 3 'take thee for a son'. For "?-?-*r-a* perhaps read '(the covenants) of ..? "engrave" (?) + *r-a* they have engraved (?)'.

l. 3. 'Manam (?) the chief': Manam (?) occurs on a new Jerabis inscription.

l. 4. For the first ideogram, see TA 5, 7. 'Aram of Kask' is discussed in § 30: Tiglath-Pileser I includes the Kaškai among the Hittites (Cyl. II, 100). The sign after *kat-s* is doubtful, but is not *man* (?). *K-r-a* = Kirrî, §§ 9, 27: the tang on the *a* is probably to mark it as a personal name rather than to add a case-ending. This is the only place which I know for the character of the two legs running. *At*" may be a verb: if it be the augmented tense of √*t*, I would suggest √*te* 'to say' for it. 'Father' (p. 99) is, however, a possibility. It would be tempting to read *Bar-k*(*g*) as *G-bar* = Gabbaru, of Ia'di, but as Panammu was also king of Ia'di, it is impossible. The name *?-anni* occurs on a new Jerabis inscription.

l. 5. *Mini*, § 75. The name *Mi-?-*[*k-k*] is difficult: it might perhaps be compared to *M-?-k-k* M x, 6. *R-k-r* apparently occurs as a word M ii, 6, q.v. The ideogram of two heads facing each other over a vessel would almost suggest the meaning 'feast'; it occurs again, e.g. M xxiii, c, 1, so as to leave little doubt that it is one group.

M XV,B. A stela from Carchemish, sculptured with a representation of a king feasting (my corrections made from the stone in 1911).

(1) ... "*San*(*n*)*-*(*g*)*gar-s* *Bar*(?)*-ḫu nin*(*n*) *ḫ* 'country' *ma*(?) *ni-n-s* : *San-gar-s*
... Sangar, son of Barḫu (?), the chief, lord of lands, son of Sangar,

(2) *"N-k-s k-a-n san-s* *N-ka-k-n kat-s n-u kat-u-n*
(and) Nks the friend (?) of the king. For Nks he unto (?) them (?)

(3) *:"Pan-am-mi* *n-m-n s-u-n* *:* *ir-r-a-u-t :*
Panammi an agreement I have written: they (?) will join you.

(4) *. . tal(?)k ID-ḫ n-m-n s-u-*(5) *n*
. . . . . ?, the chief, an agreement I have written.

Notes. I cannot help thinking that there may have been more of the inscription to the right over a figure of Nks.

l. 1. On the identifications see § 3. On Barḫu see § 73.

l. 2. For Nks see § 8. *K-a-n*, §§ 46, 88. *San-s* is the genitive of *san*, cf. § 52, 64, N-ka occurs in M lii, 4, but the whole passage above is difficult; the possibilities of reading the words *kat-n-s u-kat n-u*, or other permutation, make translation hazardous. For *nu* 'to' see §§ 7, 77.

l. 3. *S-u-n*, § 71: *ir-r-a-u-t*, see translation to M ix, 3, and notes to xxi, 2.

l. 4. The last chief's name occurs on a new Jerabis inscription.

The smaller pieces from Carchemish. M xii, 1, part of a winged figure sculptured in the style of the date of Aššurnaṣirpal, with a few characters: 2, the place-name *M-t-r-*'place', i.e. *Ḫ-t-r*, probably Pitru, described in Shalmaneser's records as on the west of the Euphrates on the Sajur[1]: M xv, A (1) . . . *s . . am . . s . . .* [*Pan*]*-mi san-s . . .* (2) . . . *a-b(a)-u pan*(?) . . *s . . s* *ḫi*(?)*-mu m-t-u : ?-n(a)-an : a-b(a)* 'lord'*-n(a) . . .* (3) . . . *n-m-n-t-an : mi-ni a- . . . ? . . . n-t : . . .* (4) . . . . *ṭ(a) . . : . .*

(D) Various Inscriptions of the Hittite Allies.

M i. The bowl said to come from Abu Habba or Babylon; date, latter half of the ninth century. It is difficult to be certain where the inscription actually begins, but apparently it is a dedicatory offering in commemoration of a covenant between Irra, Bark, Targu-ras, and other chiefs, which was in the end probably carried off as loot to Babylonia.

Te(?) *Ir-r-a* *ṭ(a)* *gu;-a* *s-e-n-mi* (sic) *"Gu-n-nas* *man*(?)*-mu*
Saith Irra, [Give (?) as a gift (?) my inscription (?) Gunnas, my . . .]:

s-e *:* *n-m-n-e* 'god'*-Targu-r-r-s* 'god'*-Sul*(?)*-e-s* *:* *mi-ni*
the documents of the covenants of Targu-ras (and) Sul(?)es we(?) have accepted(?)

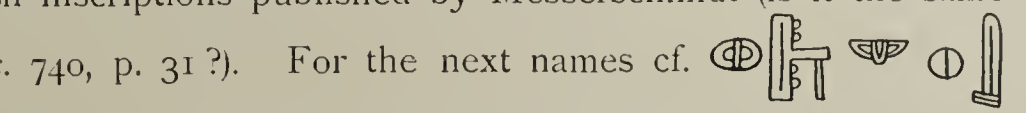
kat;-a man(?)*-k-n(a) : ? : t(a)-s* ?-'bowl'*-n(a)* 'god'*-Tesuḫ-k-n* *n-m-n-an* *a-ṭ(a)-ir*
a bowl for Tesup for our covenant hath given,

: *a-n kat-mi* *:* *s-un*(?) *: a-b(a) Bar-k-u*
which (covenant) I wrote(?) with Bark.

[1] '*Ana-Aššur-utîr-aṣbat* . . . which the Ḫatti call Pitru' (Ob. 38).

Notes. It is a difficult text, partly because of its brevity. Irra is distinctly marked as a proper name on M xxiii, 2, and possibly occurs on M v, 1. Whether he is to be seen in the *ir-r-e* of M vii, 2; viii, 3, 4 is doubtful. *Ṭ(a)* is possibly the root *ṭa* 'to give', but the sense of this paragraph is unintelligible to me.

Gu;-a (= *gu-w-a*?, p. 116) occurs perhaps in M vii, 2; *gu*(?)*;-e-u* (numeral?) 'tablet' *s-e n-m-u-an*, &c. (see translation further on); and it seems quite possible that it is to be seen in *gu-'m-u(a)* (= *gu-w-n(a)*) in M xxxiii, 2: *a-b(a)-ir : gu-'m-u(a) :* 'tablet' *-u(a)-s* : 'ally' *:-ḫ-s :* 'Our tablet of alliance bringeth a gift' (see the full translation to M xxxiii, further on): perhaps *gu-'u-a*, M x, 6. *Gu-'u-u(a)*, as far as I can see is the equivalent of the cuneiform *ku-iš, ku-in*, &c., and the numerous cases in which it occurs point to it meaning 'gift'; the forms *ku-iš, ku-in*, indicate that it is *ku-wiš, ku-win*. Examples are (nom.) (A i, 22 ff.), 'Unto thee they . . . they give *kušata* (dowry (?)) for thy daughter, my messenger (and) his (?) messenger'; *ku-iš tu-el u-it* a gift unto you *u-it* (a verb)' (cf. A ii, 14): Y *r.* 12 *ku-iš* ^{am}*MAŠDA uu-ut-ta I LU pa-a-u* '(as) a gift a poor man unto thee a sheep bringeth (?)': Liv. i, 13, *X*(?)*ṬU ku-iš pa-iz-zi* 'ten (?) shekels (as) a gift they bring (?)'. Accus. *ku-in* (A i. 13) 'I have sent (?) Iršappa my messenger to thee *a-u ma-ni DÚ . SAL-ti AN . UD-mi ku-in DAM-au-ni u-wa-ṭa-au-zi* 'that our lady(?) thy daughter, to my Sun-god as a present to wife they may give': (Y 7) *DÚ.MEŠ-ka ku-in ŠA.GA-in i-ia-au-zi* 'thy sons a gift (and) goods they . . .'. *Ku-it* (Y 16, *r.* 8, &c.) may be apparently a verb (cf. W 19 *uu-uu* ^{du}*Ištar bêlti-ia ku-it ka-ni-eš-ša-au* 'Unto me my lady Ishtar granted his (her) friendship (?)'). *Ku-it-ki* (Y 19, *r.* 39; C ix, 4) is another form; perhaps *ku-ua-au-za* (Y 5, 6); *ku-wa-a* (Y *r.* 11), *ku-wa-bi* (Y 25, *r.* 26), *ku-e ṭa-aš* (A i, 17), *ku-e ṭa-ui-ik-ki* (Y *r.* 9) are possible forms of the same root. It seems, therefore, fairly clear that the hieroglyphic *gu-'u*(*w*)*-u*(*a*) (the accus.) is the same as *ku-in* in cuneiform.

On *s-e* see § 32, *note*. *N-m-u*, § 68. The name *Targu-r-r-s* occurs in the form *Targu-r-r-s-e* in M xxxii, 2, and *Targu-r-r* . . in a new Jerabis inscription; the shorter form *Targu-r-s*, *Targu-r-zi* (and even *Targu* simply?) on the Carchemish inscriptions published by Messerschmidt (is it the same name as Tarḫulara, chief of Gurgum, *c.* 740, p. 31?). For the next names cf.  (oblique case), which occurs on a new Jerabis inscription: on the value of the god's name see § 53. *Mi-ui*, § 75, and for the form, § 69: it is more probable here than *mi-ui-a* 'we'. *Kat;-a* occurs on M xlvi, 1. On *au* as a possible accus. from *a-u* 'who' see § 83: on *s-uu* (?), § 71. Bark is a well-known name on the Mar'ash and Carchemish inscriptions.

The Aleppo inscription, of which probably the best copy is that of Professor Sayce in *PSBA.*, xxxiii, 1911, 227, is too mutilated for translation. It mentions Tesup-id(?)-r (Benhadad).

The Inscription from Tel Ahmar. The text of this was first published by D. G. Hogarth in the *Liverpool Annals of Archaeology and Anthropology*, ii, from squeezes taken by Miss Gertrude Bell: and when I was sent down with Mr. T. E. Lawrence from Carchemish by the Trustees of the British Museum to Tel Ahmar, I was able to make a direct copy of the inscription again from the actual stone, which shows that the published text needs correction in several places. The stone was perfect a few years ago, but an Arab, being mad, claimed to have read the Hittite inscription and broke the stone in order to obtain the treasure which it concealed.

Tel Ahmar was the ancient Til Barsip which was occupied and colonized by Shalmaneser, so that the Hittite inscription probably dates to the earlier

years of his reign or late years of Aššurnaṣirpal. Among the names in the inscription are Ḫuni (Aḫuni, the ruler of Til Barsip), Mutallu, Nistu, Giammu, Bark, and Barḫi (Bar-Ḫayâ ?), which date it fairly accurately.

(1) [Lacuna] . . *ni-?-n ḫ*(?)-'place' : 'lord'-*k-n-s "E-r-k-ar nin*(*n*)-*s*
[Saith . . . unto his lord X of] the country . . . : unto his lord Erk(ar), the son

: 'ally' : 'ancestors' . . . [hiatus] . . . *man*(?) *ar* ? ? *Ḫu-ni-si nin*(*n*)-*s* :
of the ally of [our] ancestors . . . . . to Ḫuni (Aḫuni) son of

Mu-tal;-a-ḫ-s : 'ally' : -*ḫ b*(*a*)-*a mi-n-s* *a-b*(*a*)-*t*(*a*) : *te*(?)-*ni* ?-*si*
Mutallu the great, 'Make alliance with us.' For thee we have commanded (?) [as

: 'ally' : -*ḫ*-? *a-t"* (?) : 'bowl';*nin*(*n*)-*s*
a sign ?] of making alliance . . . our bowl

(2) 'god'-*Tesup-s* 'god'-*n-ni-s* : 'lord'-*k-n-nis* 'god'-*Gar-gu* ?-*am*-? : 'god'-?; *ir k*
{ for Tesup, our god. Unto his lord } Gargu (of ?) ?-am-?, (proper
{ Unto his lord, Tesup, our god }

ka s 'god'-?-?-*s r-e*(?)-*si e-a* : *ḫ-s-e-n*-'place' 'god'-?-*s* . . . [hiatus] . . . 'god'-
names) of the country . . . ,

Targu-r-[*r* ?]-*s-e* ? . . . : 'place (?)' : ? ? *nin e* 'god' . . *Ir-k* . . *s s s* . . . [hiatus] . . . *s a*-?
Targu-ras (?) Irk(ar ?) . . . ?

mi-t a-b(*a*)-? . . *te*(?) . . *mi* . . *ni* : *ID* : -*mi*-? (line ends)
with ? my (?)enemy

(3) ? : ? *si*(?) *ni* . . *t*(*a*) *u*(?) . . *n"* . . *m* : . . . . . ? *a*-?-'place' *r-nin-n* . . ? . . *r* . . *e* . . *e* . . ? . .
? ? we asked (?)

si . . . [hiatus] . . . : *Bar*(?) . . *ḫu* . . . ;-*ṭ*(*a*) *s-r-a* *ID* : *I-k-n-m*
Barḫu (?) [1] . . . have written 'Against my (*sic*) common foe

: *k-mu t*(*a*)-*e-a* "*Gu-am n*(*a*) . . . . *e* [*Tesup* ?]-?-[*r*]-*s* . . *n* . . *nis* . . *t* . . *t* . . *r*-[*s*]-*si-t*(*a*) :
I will go with thee : Giammu (and) . . . (and) [Tesup-ras ?] . . . . . will join thee :

(title ?) *B*(*a*)-*r-k k-si* (or *n*(*a*) ?) : *ma-ḫ-n-s* ?-*s-t* *t*(*a*)-*a* : *ID; N-r*-
like Bark . . . (*or* for Bark), our great lord thou shalt fight (?) against(?) ?' Unto

(4) *am-k-n* 'god'-'Sun'(?)-*san* ?-*as U-'m-k*
Naram (Naharaim ?) (the chief) 'The Sun (?) is king', the ruler (?) of Amḳ

[1] 𒁁 (*bar*), certain, but the group may not be Barḫu.

: "?-*e* "?-*u* : *te*(?) 'country'-*zi* *s-r-a* :

(the chief) ?-e, (the chief) ?-u, { (in the speech of the land ?) / (in the land of . . . ?) } have written,

kat-n : *t-e* : *I;ID-a-ar* *sam-r-a t*(*a*)-*k-n*(*a*)

'We are of one speech (mind) against a foe.' They have made [a feast ? ?],

ID . . r : ? *ID-k-n-s* : 'ally' :-*ḫ-n* :

an enemy . . . [saying] 'Against his foe let us make alliance ;

n(*a*)-*zi* : *ID-n*(*a*) *ID-n*(*a*) *t-r*(= *r-t* ?) *a-am-t* [or -*an a-s-t* ?] . . . [hiatus] . . .

among (with) us our . . . [he joineth ?]; he hath set . . .'

?;-*as ar-e* : ?;-*mi* ?-*e nis-mu-k* : "*Nis-t-u* : *a-an-t*

joining [our ?] . . . my . . . (The chief) ?-e like my son (the chief) Nist hath set

'ally' :-*m ar* *r-nin-t*(*a*) : 'ally' :-*ḫ b*(*a*)-*a mi-ni-s*

join(ing) my alliance. He (we) asketh (?) thee 'Make alliance with us.'

(?)-*e san* *U-s-?* : *a-b*(*a*)-*u-t*(*a*) : *san-n t*(*a*) *e* . . ? *k* ?; *ar-e* ? *t-k s-e-u*

Maketh (?) . . . Us-?(?) 'With you we will act (towards you ?)' . . . joining (?)

(5) . . . *ID r* . . *r* . . *t*(*a*) . . *ma-n*(*a*)-*n-n*(*a*) : *n-m-n-an* *r-s-mi* *e-a B*(*a*)-*t* : 'ally' :

. . . our lord : our covenant I have joined(?) with Bat : I have joined

ar-mi : *ḫu* : -*mi-zi* : *n-m-n-an* *a-b*(*a*)-*t*(*a*) : ?-*ḫ* . . *n-s* . . .

alliance among (with, for) my nobles : our covenant (is) with thee : the chief ? . . .

[hiatus] . . . -*e* : 'ally (?)'-*ḫ-mi u-zi* : *ID-n*(*a*) : *ID* *r*;-*mi* ?-*ḫ ar-n*-[*s* ?]

alliance (?) I have made among (with) them ; our . . . . . ?, the chief, hath joined

. . . *nis* : *kat-n* : *I;* *ID-a-ar a-b*(*a*)-*t*(*a*) *r-nin-n-t*(*a*)

us (?) (saying) 'We are one against an enemy with thee : we ask (?) thee

: 'ally' :-*ḫ b*(*a*)-*a mi-n-s* *ID-a mi-t* : ?-*ḫ* : "?-*ni-ḫ*(?) [1] *san-n*

"Make alliance with us". the chief (and) ?-*ni*(?) : let us act

e-a-t(*a*) : (title ?) *B-r-k-k-n* ?;-*a* : *ḫ-e-e*(?)

with thee' Unto Bark great . . . s

(6) *mi* . . : ? : *ḫi mu k n u*(?) : ?-*r-a* : *mi*(?)-*t I*(?)-*k-n* 'bowl'; *s-n-zi*

[together ?] a bowl [they have

(or *n-s-zi*) ['god'] *Tesup-k-n* : ? : ? : *a-ṭ*(*a*)-*t* : *te*(?) ? . . .

inscribed ? *or*, for our bowl] to Tesup . . . he hath given

(7) . . . *a m* : 'ally' :-*ḫ m n* . . :  [lacuna] . . . *san-n-t*(*a*) -*ṭ*(*a*) : ?; *ar* 'ally (?)' *ar*

. . . make alliance will act with thee

[1] It cannot be the "?-*ni-li* of M xxi, 1 ?

li-n(a) e e ṭ(a) e ṭ(a) a ṭ(a) mu-n(a) ?-ḫ k u-zi : n-m-n-a-n
like ?, the chief, among them : our covenant

a-b(a)-t(a) : ID;-k-n-m : ar-mi t-s : (?) 'bowl';-nin-n-s
with thee at my feast I joined : ? our bowl

(8) 'god'-*Tesup a-b(a)-? : ? ? san-n-t(a) . . : ?; man*(?) 'ally' (?) *ar li-n-n(a)* (?)
for Tesup brought . . . .

a-ID-t : t-e n ar(?) *ar*(?) : *Bar*(?)-*ḫi r-nin-t(a)* : 'ally' : . . .
saith (?) Bar-Ḫayâ(?) asketh (?) thee : '[Make] alliance [with us]'

[large hiatus] . . *nin-r-a ? e* 'ally'-*e ṭ(a)* . . .
. . . .

Notes. In spite of the attempted translation being such a patchwork I thought it better to piece it together thus, rather than to give a collection of selected phrases.

l. 1. *Erkar*, cf. l. 2 (or *Erskar*, cf. p. 53). I cannot suggest any identification for his name. On 'ancestors' cf. translation to M xvi, A and § 50. Are we to consider that Mutallu had taken Aḫunu as his adopted son, or should the 'son' be part of the writer's words ? The character before *zi* occurs also on M i, and I have hazarded the suggestion 'sign' as a translation : or are we to read a chief's name here, including the 'face' sign, and comparing l. 4 ? *Atᵘ* occurs M xi, 4. The word *nin-n-s* is difficult : is it an elaborate form of 'our' ? This gift of a bowl to Tesup is mentioned again on ll. 6, 7 : cf. M i.

l. 2. On 'Tesup our god' cf. the phrase in M xxi, 5 'god'-*Tesup-u-nis-k-n* 'god'-*n-ni*. *Pan*-[*am*]-*mi* might be suggested as a possible restoration for *te*(?) . . *mi*.

l. 3. Giammu, the ruler of the Balikh district. For *r*-[*s*]-*zi-t(a)* see § 83. How are the characters after *B-r-k* to be read : *B-r-k-k : ma-ḫ-zi n-s* 'like Bark with our great lord' ? *N-r-am* is possibly Naharaim, Tel el Amarna *Na-ri-ma*, Eg. *Nhrina* : place-names are not necessarily marked by the determinative.

l. 4. The name of the ruler of Amḳ occurs (?) on M x, 2 : the two names following his, although as yet unreadable, occur in the northern inscriptions, Malatia and Mar'ash respectively. The word following, *te*(? *pan* ?)-'country'-*zi*, is difficult : is it a name of place or person, or does it simply mean 'in the language of the country' (Naharaim) ? For -*ar*, -*r* as an enclitic preposition see § 82, *note* : at the same time *ar* might be part of the root 'to join'. *Takna*, notes to translation to M ii, 2 (p. 111). The group following 'let us make alliance' occurs also in l. 5 : there is some doubt about the grouping of the hieroglyphs : here we might read :'ally':-*ḫ-n : n(a)-zi : ID-n(a) ID-n(a)* or :'ally':-*ḫ-n-n(a) : ID-zi : ID-n(a)*. The example in l. 5 :'ally (?)'-*ḫ-mi u-zi : ID-n(a) : ID r;-mi* seems to point to the former being correct. The first *ID* looks like a flame, and is used with *ḫ* in ll. 5, 7 and in M xi, 4, 5, and without, in xxxiii, 10, probably (at any rate in TA) to indicate a chief's name. The second, the curling line, occurs also with *n(a)* on a new Jerabis inscription : (So-and-so) *ID-n(a) a-s-t* 'hath written a . . .' (§ 70). I can offer no satisfactory translation. 'So-and-so hath reckoned Nist as though he were my son' : Nist was the son of Bauli, the grandson of Mutallu, either by birth or adoption. *R-nin-t(a)* occurs again in l. 8, and as *r-nin-n-t(a)* in l. 5, which makes it probable that an additional *n* suffixed indicates 1st pers. pl. ; I can only suggest the meaning 'ask' for it. (See p. 107 for the root *r-n*.)

l. 5. On *n-m-n-an r-s-mi* see § 68. Bat occurs on M ix, 4. On 'nobles' see § 38.

l. 7. See § 33, *note*. For *t-s* cf. the Hittite cuneiform *ta-aš*, which occurs Z i, 8, *ta-aš i-na* $^{a\text{-}lu}$*A-ri-in-na* and 12 *ta-aš a!u-ri-an-ṭa-an*. It might possibly mean 'this'. (Cf. the *t(a)-s* on M. 1, p. 122.)

M vii. From a statue found at Kirtschoglu : date, middle of ninth century. From an unknown king of a place not far from Panammi's state, mentioning 'our brother Barḫi' (Bar-Ḫayâ ?) and recording an alliance.

(1) *Te(?)-a-sam(n)* . . . : 'ally' :-*ḫ* [*b*(*a*)(?)]-*a mi-nis t*(*a*)-*a mi-t* *Bar*(?)-*ḫi*(?)
Saith [Panammi ?] . . . 'Make alliance with us concerning (?) Bar-Ḫayâ (?)

'brother'-*nas* 'god'-'place'-*ḫ-s-n*(*a*) "?-*tal-n*
our brother' : by the great god of his land unto -tal (a chief)

(2) *t-e* *k;* *ir r e a-am-nis* : *gu*(?),-*e-u* (numeral ?) 'tablet'
{ he hath said, } 'Come . . . . . .' their gifts (?) . . . a tablet (?)
{ *or* "?-*tal-n* hath said, }

s-e n-m-n-an *n-t . . sam-mi* *a-b*(*a*)(?)-[*u*(?)-*t*(?)]
the writing of our covenant [with] you I have [written ?] : [with you ?] (hands)

: 'ally' : *ar-mi* . . .
alliance I have joined.

Notes. l. 1. On *ta mit*, see note on p. 85. On Barḫi (?) see § 73. For 'the great god of his land' cf. § 81, and the translation to Restan (p. 114), M vi, 2, and M xi, 4; or s hould we read *n*(*a*)-*s* 'our' (land) ?

l. 2. *Irre* can hardly be a form of the chief's name Irra (cf. l. 3 of M viii): on *a-am-nis* see the notes to translation of M x, 7. *Armi*, notes to translation of M xxi.

M viii. From Iskanderun : date, second half of ninth century. Record of an alliance.

Top line broken.

(2) : *a-*?-*n*(*a*) *kat-n*(*a*) 'ally' ;-*mu* *e-a-n* :?-; *te*(?) *r-r a-b*(*a*)-*u*
? we (and) my ally with us, . . . ? (a chief) promiseth he will join (?) with

kat-mi : *k* ; ?-*a-an* : *t*(*a*)-*a* : *mi*
them I will come . . . Unto me

(3) *n*(*a*)-? *ID;-man*(?)-*n*(*a*) 'brother'-*n*(*a*) 'ally' ; *Ir-r-e* *a-ḫ*(*a*)-*ir* . . *u* 440 *t-u*
? -manna, our brother, the ally of Irre (?) hath given . . 440 *tu.*

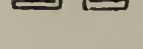
an;
Hath appointed (?)

(4) *Ir-r-e* : *M-n-n*(*a*)-*m* ?;-*u r-k-n*(*a*) 'ally' ;-*e* *K-r-a-u* : *kat-s* *mi-r-a-mi* :
. . . . as the allies of Kirrî. He in my presence

(5) : *te*(?) *k*-(?)-*mi* : *ḫ*(?) . . : *a* . . : *ar-*? *a-ar-u* . . *ḫ-*?-*s-mi* ?
hath said, 'I will come (?)' . . . .

NOTES. It is a very difficult text, and I have inserted only a tentative translation.
l. 2. It is possible that the hieroglyphic name '?-;' is the same as that in M ix, 5.
l. 3 For *Ir-r-e* see M vii, 2. '440' was suggested by Professor Sayce (*PSBA.*, xxvii, 1905, 199).
l. 4. On Mannam see note to M xi, 3: on *rkn(a)* see note to M ii, 6: on *K-r-a-u*, M xi, 4.

M xviii, *from Gürün* (middle of ninth century). B, l. 2, contains the name 'Shalmaneser (?) king of Nineveh', and l. 5 contains the names of some chiefs of the Nine. Beyond this the characters are too obliterated for any translation.

M xix, *from Izgin* (middle of ninth century). It begins 'Saith  -?-*s*' (one of the kings of M xvi, A?). There are mentioned  -*ar-mu* l. 4,  (?) l. 5,  l. 7, *Kat-t-e*(?) l. 8, possibly *Gar*-[*a*]-*li* l. 16, *Pau-mi san-s*, l. 18.

M xx, *from Palanga*: too obliterated for an attempt at translation.

Garstang, Land of the Hittites, pl. XLI, an inscription from Aintab (middle of ninth century). (1) broken, (2) *kat-n-s* ?-? *ni-zi* : *K-a-k n-n*, (3) . . *li* ? . . *a-an*(?)*r m* . . . ? The chief interest in this text (which I have copied from a photograph) is the name *K-a-k*, which also occurs similarly spelt in the long Jerabis inscription mentioned in § 87. It is obviously the Kâki of Shalmaneser, § 24.

M xxvi, *from Karaburshlu*. An alliance feast, inscribed.

(E). THE ARIARATHES INSCRIPTIONS (middle of ninth century).

M xxxiv, *at Ivriz*. A rock sculpture at the headwaters of a clear mountain stream. The larger figure (Tesup-mis) holds corn and grapes in his hands: the smaller (Ariarathes) makes the sign of greeting.

A. Over the larger figure is the inscription

(1) *mi-a* 'god'-*Tesup-mi-s* (?)-*s kat-mi*
I am Tesup-mis, the (?): I am

(2) *"A-r-ar-a-nin-s* *a-ṭ(a)-an ID.I.-ni*
the 'son of Ariarathes'. We have given our hands (alliance):

(3) *s-e* 'ally'-*n(a)* *ṭ(a)*-?
the documents of our alliance giv[ing]

B. Over the smaller figure

(1) *mi-a mu-nas*(?) *"A-r-*
I am . . . Ar-

(2) *ar-a-s te*(?)-*ḫi*
iarathes greeting

(3) *n"-ni-mi*
my son

Notes. I cannot make anything of the inscription C, except that the name *A-r-ar-a-s* occurs in it. The Ariarathes here portrayed is, I assume, much earlier than any of those kings of Cappadocia of his name given in Greek records. I do not doubt myself that the Tesup-mis here sculptured is the same as the Tesup-min(a) (accus.) on M lii, 2, which would make the date of this inscription about the middle of the ninth century. This is endorsed by the names Targu-r-r-s-e and Pan(am)mi in M xxxii: (title ?) B(a)-nin(n), xxxiii.

l. 2 (A). Tesup-mis calls himself 'son of Ariarathes', probably having been adopted. (The discovery of this postpositive 'son' is due to Professor Sayce (*PSBA.*, xxvii, 1905, 234: cf. *ibid.*, 225, l. 1: 226, l. 2)). Ariarathes is the king of Bor (M xxxiii) In B, 1 are we to read *mu-t(a)* (see pl. LVII of Garstang, *The Land of the Hittites*) 'thy *mu*', which would suggest *mu* = 'father' (parallel to *ma* = 'lord')?

l. 3 (A). For *s-e*, see *note* 2 on p. 33.

M xxxiii, *from Bor.* Sculptured with the figure of a king wearing the same flat head-dress as Araras at Ivriz.

(1) *:"A-r-ar-a-s :"Ṭ(a)-a-n(a)-a-ḫ-s-*'place' *:* 'lord'*-k-s : Tal-ḫ-s : te*(?)-*ḫi*
Ariarathes of Tyana, the great, unto his lord Talḫas sendeth greeting

li-n s-t(a)
(*or* a message) [Unto (?) us (?) thou (?) didst write (?)]

(2) *:* 'ally'*: -ḫ b(a)-a mi-nis : a-b(a)-ir : gu-'m-n(a)* 'tablet'*-n(a)-s*
'Make alliance with us.' Bringeth a gift our tablet

: 'ally'*: -ḫ-s : te*(?) *s-e-t(a) : t(a)-a*
of making alliance; thy letter did speak concerning (?)

(3) *: mi-t ID; "Ṭ(a)-a-nas : te*(?)*-mi b(a)-ir-t(a) ḫat*(?)*-ir-e-mi*
Tyanian wood. I have commanded (that) should bring (it) (thee) my

:(?) *e-a-t(a) ID "Ṭ(a)-a-nin-n(a) :* 'god'*-Tesuḫ-mi-n(a)*
messengers (?): (now) with thee is the (our ?) Tyanian wood! Tesup-mis
(i.e. thou hast Tyanian wood).

(4) *: a-*(?) *: k-k;-an-ni : a-am-s u-t "*(?)*mi-n*

(5) *. . ir . . n"* (6) *. . . n :* (title ?) *B(a)-nin(n)* (7) *: a-b(a)-ir "*?*-k-a . . li-s . . .*
Banin hath brought

(8) . . . *u* . . *s* : *"Am-ṭ(a)-nas* : 'lord'-*a* (9) *u-e-a* : *kat-k* : (title?) [Banin?]
the lord of Hamath with them Katk (?) . . . Banin? . . .

(10) . . . 'ally'-[*ḫ b(a)-a*] *mi-nis* *ID-n(a)* : *n(a)-t* (11) : *ḫat*(?)-*ir-u* . . .
'[Make] alliance [with] us.' their messenger (?)

(12) . . . *k*(?) *a-b(a)-ir* ?-*e-ni* *li-n-s-ṭ(a)* *ḫat*(?)-*r* 'god'-*Tesup-mi-s* . . .
. . . hath brought our . . . to us (?) and the messenger (?) of Tesup-mis . . .

Notes. l. 1. On Tyana, see § 1, *note*. *Talḫas*, M xxxii, 1. On *li-n s-t*, cf. notes to translation to M x, 7.
l. 2. *Gu-'m-n(a)*, see notes to translation to M i (p. 123).
l. 3. *"T(a)-a-nas*, § 85, *ḫat*(?)-*ir-e*, *ḫat*(?)-*ir-u*, l. 11, *ḫat*(?)-*r*, l. 12, § 92.
l. 4. On *a-am-s*, see notes to M x.
l. 10. On the ideogram, see notes to TA (p. 126).

M xxxi, c, *from Andaval.* It mentions *"A-r-ar-a*-? in l. 3.

M xxxii, *from Bulgar Maden.*

Professor Sayce (*PSBA.*, xxi, 1899, p. 205) says of this inscription: 'I should advise those who did not spend hours over the squeezes of the Bulgar Maden inscription when they arrived in England to leave that inscription alone,' and from the appearance of it in Messerschmidt, although I have never seen the squeezes, I should quite concur. Either the inscription changes the recognized forms of the characters, or we have several of them written backwards (e.g. *nas* l. 2, *n(a)* l. 2, *t* l. 2, *u* ll. 2, 3). It begins:

(1) *Te*(?)-*b(a)-a-sam(n)* : *Tesup-n(a)* *"Pan-mi* *Nis-t* : *Tal-ḫ-s* :
Say (*or*, have said) (unto?) Tesup-[mi?]-s Pan(am)mi, Nist, Talḫas, (and)

Tesup-a-n(?)-*s* : 'ally' :-*ḫ b(a)-a mi-nis* : *"A-r-ar-a-nin-s* : 'lord'-*k-s* . . .
Tesup-aus (?), 'Make alliance with us.' Araranins (= Tesup-mis) unto his lord

k-u-nis(?) : *Tal-ḫ*(?)-*s* : *nis*(?);-*s* ; *t(a)-a-u* : *te*(?)-*sau(n)* : *ma-ḫ-u*
. . . Talḫas, his son (?) unto them: Our great lord

(2) *"A-r-ar-a-ni*-[*t*?] : 'lord'-*k-n* : *kar;-a* *nas*(?)-*mi-e* *a-b(a)-ir* 'god'-
Ararani[ns?] said unto the lord : . . . hath brought

Lal(?)-*k-n(a)* : *b-k-n(a)* : 'ally'-*n-u* : *a* . . . *n(a)* 'god' *Tesup-mi* 'god' *Targu-r-r-s-e* :
Tesup-mi(s) (unto?) Targu-ras,

r"-n(a) *t*(?)-*e* : *"Ar-u* : *-a-u-t* : *"Mu-m-e* :
our . . . saith, 'The tribe (or *"R-n(a)-t*(?)-*e* of the tribe) of Arwaut (?) Mume,

T(a)-a-'country'-*ḫ* :
chief of the city of Taia . . .'

NOTES. For the rest I can suggest little: proper names apparently occur, notably in l. 3, *te*(?)-*san-ni* ?-*e-t*(*a*) : ?-*an-nas U*(?)-'*m-k* : *ID;-n s-r-a* 'god'-'friend'-*k-ni-nis k-n* : *kar-a-tal*(?)-*k-n* 'telling us (?) .. eta (and) -annas of Unḳi a ... have written, "Unto (by ?) the god of our friend we will come (?) ..."' (better than as hyphened on p. 33), and at the end of the line, 'Our great lord Araran(a)-[?] hath spoken with you.' In l. 5, 'god'-*ḫ-m* : *a*-?-*ir* : *k-a-n mi-r-a-u-t* : 'by my great god, he hath ... friend (?) in your presence' (or does this latter phrase belong to the following words ?).

Piecemeal as it is, it seems that we have here, graven on the rock, the record of an invitation to an alliance which was accepted by Tesup-mis (or 'Ariara-nins' as he calls himself, because of his adoption by Araras). The word Ar-u-a-u-t is interesting, as it may possibly be the Aramean tribe which the Assyrians called *Ru'ua* (WAI, i, 37, 44: 41, 36: ii, 67, 7): the place '*T*(*a*)-*a*' might be the city Ta-ia-a of the Patinai, mentioned in Shalmaneser's monolith (ii, 11) (see also WAI iii, 9, 44): and in l. 3 apparently we have the name of a king of Unḳi ending in *-annas*.

The names Ru'ua, Taia, Unḳi give probability to the correctness of the reading Panammi, since they are places in the Hittite or Aramean districts: similarly Targu-ras, who occurs on Carchemish inscriptions, and Nist (of the Mar'ash texts), add their evidence.

(F) THE ROYAL NAME AT BOGHAZ KEUI.

M xxvii–xxviii. The hieroglyphs, containing the king's name and titles (xxviii, 1–3: Emir Ghazi, M l, 5) are difficult to identify: xxviii, 1 clearly begins with the name of a god (most probably the sun), a figure, probably of the god, standing on what must be the sign *ṭ*(*a*) (it is fairly clear in the photograph which I took, *PSBA.*, xxxii, 1910, 240): on either side of this are what must be the sign *n* standing on what is certainly *ar*. Outside these are the groups for 'lord of chiefs,' the whole group being paralleled by Rams., where the king's name 'Un(?)-?-tal-s, lord of chiefs,' is spelt in much the same way, with Tesup written large above, and 'lord of chiefs' on both flanks.[1] In the Boghaz Keui name the god's name of 1 is represented apparently by the god-sign in 2, and hence the name may possibly be read 'Sun-god-*ṭ*(*a*)-*n-ar*'. It would be reasonable to expect this name to coincide with one of the great kings of Boghaz Keui when its power was at its height in the fourteenth century: and of these we know Subbiluliuma (Sapalulu), Mursil (Maurasar), Muwtallu (Mautenel(r)), Ḫattusil (Khetasar), Dudḫalia, Arnuanta. The most similar of these is Muwtallu, when spelt in the Egyptian way, Mautener, which would give rise to several problems if the identity were maintained. The arguments against would be (1) that Mautener is the Egyptian form of a name which those Hittites of the fourteenth century who understood cuneiform wrote *Mu-w-at-ta-al-li* (W 43), which the Assyrians in the ninth century still wrote Mutallu, the Hittite hieroglyphs of that period showing *Mu-tal;* (or *Mu-tal-w*),[2] a difference from the Boghaz Keui

[1] In this latter case, however, the variants (the name is written five times) show that the name Tesup has no share in the name.

[2] The seal M xlii, 5 is proof that Mutallu of Gurgum spelt his own name Mu-tal, and that it is not merely the error of a foreigner such as Benhadad.

form; (2) that *Muw* has not yet been found as an important Hittite god, and particularly the Sun: (3) as yet the characters, being different from the ordinary forms, are uncertain in identification. On the other hand there are certain arguments in favour: (1) that it is probable that it is one of the six names quoted, and Mautenel(r) at first sight is the most likely: (2) that nearly five centuries have elapsed between *Mu-w-at-ta-al-li* of Boghaz Keui and Mutallu of Gurgum.

(G) The Sculpture at Fraktin.

M xxx. Two royal figures making offerings at the altars of their gods. In *A* the god is simply labelled 'god', and the worshipper 'lord of chiefs "?, lord of chiefs'; in *B* the god is called 'great (plural) god' and the worshipper's name reads '*Ma*(?)-*ṭ*(*a*)-*n-r*, lord of chiefs', which makes it probable that the name is the same as the royal name at Boghaz Keui, and hence we should see in the first doubtful character the equivalent for the god's name forming part of the aforementioned king's name (cf. p. 135, no. 2, and pl. XLVII, Garstang, *Land of the Hittites*).

The inscription (*C*), as has been discussed in § 92, runs, as I read it, *Ḫat*(?)-*m*(*w*)-*zi*-'country' 'ally'-*e*(?) *ar-mi* 'With Ḫatti (Ḫat-w)-land I have joined alliance'.

(H) Hittite Seals and Impressions.

M xxxix, 3, 7, 8, 9. The reading is 'Palace *Tesup-r-nis*: the termination *-nis* probably indicates the genitive, the nominative being Tesup-ras, analogous to Targu-ras. Nos. 2–9 were found by Layard in Sennacherib's palace at Kuyunjik. 6. *Tesup-san-s* 'Tesup-is-king'. 10 (also from Nineveh). 'God'-*Targu*. Either this is an abbreviation for some king's name beginning with Targu, or we may compare the description of the silver tablet of the treaty of Rameses with Khetasar whereon were impressed the seals of Ra and Sutekh.

M xl (all of which were bought in Constantinople, having been brought from the interior of Asia Minor). 2 reads either *Nis-Tesup*, *Tesup-Nis* ('Son of Tesup'), or *Ḫ-Tesup* ('Great is Tesup'), 'the great lord'. For the last name see § 36, *note*. 6. *Tesup-ḫat*(?)-*san* ('Tesup, friend of the king'). 11, 15, 16 read apparently *S-k*. 10, 12 apparently the same: 12 reads 'Lord-?-*t*, lord of the land' (the crooked hieroglyph cannot be *nis*, making the name Nist?). In 17 the name begins with Tesup, in 18 the same doubtful character occurs as in 2.

M xli, 1. Targašnalli, § 11. 2. A king on the right beneath the winged disc, and the group which Professor Sayce, I think erroneously, identified with

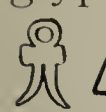
Išḫara. In front of the god the inscription 'Seal (?) of Am- . .' See note to M xlv, 8.

M xlii, 1. Apparently inscribed *r-s-mi* . . . which would almost lead us to think that *r-s-mi* meant 'I have signed' rather than 'I have joined' (p. 107). 5. 'Mutallu of Gurgum', § 31. 9 is that difficult bilingual, the so-called 'Tarkondemos Boss'. The cuneiform runs

Me-e ^{m}*Tar-gaš-ša-*$\begin{Bmatrix} aš(?)\text{-}mi(?) \\ ti(?) \end{Bmatrix}$*-wi šar mâti ali*

('I am T., king of country-city').  is a possible equivalent of the  of the tablets. Professor Sayce suggested that the goat's head might be compared to *τράγος*, and read thus so as to form the equivalent of the first part of the cuneiform. It must be noticed that this head may be distinct from that of the ibex head *as*. A possible reading of the hieroglyphs is *Lal*(?) ^{n}*Targu*(?)*-san-t*(*a*) 'country' 'lord' = 'Seal (?) of Targu-santa, lord of the land'.

M xliii, 7 looks much as if it were *Lal*(?) ^{n}*Mu-tal* ^{n}*Gu-gu-'m-mis-*'country' 'Seal (?) of Mutal of Gurgum'. On 8, obv., are the sun-god, Targu, and an ideogram for a god, which may or may not be the sun, descriptive of the winged figure; if it is, then we have the hieroglyph for the sun-god. The rev. bears a name *B*(*a*)-*m*(*a*)-*s* ?

M xlv, 8. The bilingual of Indilimma. The cuneiform reads 'Indilimma (Indišima), the son of $\begin{Bmatrix} \text{Šin-ni-iš-mu} \\ \text{Še-ir-da-mu} \end{Bmatrix}$, the servant of Išḫara' (the reading Šer-damu is due to Professor Sayce, *PSBA.*, xxv., 1903, 143). The four Hittite hieroglyphs presumably are the equivalent of some part of the cuneiform: the two  form a group which occurs near the king on M xli, 2: round the inner ring of xliii, 2, 4: after the name, *ibid.*, 6. The first character of this pair does not, as far as I know, occur in the form which M xlv, 8 gives it, away from the seals; the second occurs in the published texts M xi, 3: xii, 5 (a chief's name?): the chief's name *A*-?-*mi-s* xvi, B: xxi, 2: xxxii, 5 (*a*-?-*ir*): xxxiii, 4 (*a*-?): liii. On the seals it is difficult to distinguish, and in some cases there is no distinction between it and the sign for 'lord' or 'country'.

I can only offer a few suggestions for the remaining texts in M. M liii from Nigdeh runs *mi-' M*-?-*na s-r*(?)-*a ḫ nis n-m-n-an te*(?) *r-s-mu nis*. 'I am M-?-na, son of Sra (?) the chief: our covenant . . I (?) have joined (?) . .' is possible. For *Sra ḫ nis* see M xlvi, from Karaburna, which mentions the

group often (as well as  (l. 1) (?), and the 'flame'-ideograph (l. 2) for a chief's name, which occurs in TA). Apparently it begins *Mi-' e-ḫ-nas-mi* (for this second word see the Hamath texts), and the unusual group, about the fourth word, occurs in M lii. The text from Ekrek (M xxxi) runs (1) *"Tesup-a-n-nis "Tesup-mi-'m-nis Kar-san-s* : 'ally' :-*ḫ b(a)-a-mi-s : a-k-u te*(?)-*r-nis : "A-r-s ḫu-n-nas Kat-k nas-am-mi : te*(?)-*r : mi-t(a) : e nin* ... (l. 2) ... *a*-? 'Tesup-annis (?), Tesup-mimnis (= Tesup-amminis?), Karsanas, Make alliance with me: they have come ...' (see § 65). M xlviii from Erzerum (?) mentions the 'Nine' and *"Gu-g-nis*, which is to be compared to the writer of the Bogtcha stone *"Gu-g-n-nis* (*PSBA.*, xxxii, 1910, 173).

The stone from Kellekli (Hogarth, *Liv. Annals*, ii. 172) shows the name *Gu-am* (Giammu), l. 2, and possibly 'Lal(?)-li(?) of Ta-bal(?)', l. 3.

I shall consider myself fortunate if only a part of this decipherment proves to be correct; and if any of it ultimately appears to be of value I would connect it with the memory of my father, Reginald E. Thompson, M.D., who, almost until the day of his death, took a lively interest in the progress of the work. To the kindness of Sir F. G. Kenyon, K.C.B., D.Litt., Director of the British Museum, I am much indebted, both for the many facilities which he has granted me, and for the encouragement which his interest in the work has given.

A LIST OF HITTITE SIGNS

I append a list of signs with references to the evidence for their values. It does not pretend to be complete, and the Sanskrit words from Fick's *Vergleichendes Wörterbuch* are added merely as suggestions.

1.  'One' (TA 3, &c.): the mark of personal or place-names, either as a separate character, or affixed to some part of one of the characters in the form of a tang, § 17. It is not indispensable for names.

2.  *MA*: 'lord', as ideogram in phrase 'lord of lands', § 44 (the third finger: cf. Skr. *mah* 'great').

3.  *MU* (from 2): from name *Mu-tal;*, § 31, and as suffix 1st sing., §§ 42, 43.

4.  *SAN* 'to make', § 74: value from *San-gar-s*, § 3 (= cuneiform *san*?) = 'king', § 52: possibly interchanging with *s*(?)-*an*, § 52, *note*. (Zend *zan* 'create', and cf. 'king' from same root).

4 A.  No. 4 with a tang (M. xlii, 9).

5.  'Nine': apparently referring to some nine who formed a league?, § 35.

6.  Word-divider (§ 1 *note*).

7.  *Ḫ* (=  , § 15) 'great', 'chief', §§ 35, 49: value from causative formation, § 37, and *hu-u-wa-an*, § 36: verb, § 70.

8.  See § 1, *note* (Sayce ultimately, *PSBA.*, xxvii, 1905, 247, det. of ideographs). I am inclined to see a *w* in this character: see notes to translation of M v, p. 115.

9.  ?: see §§ 7, 70, and p. 126.

10.  *A* or breathing: value from augment in verbs, §§ 45, 70, *Ṭ*(*a*)-*a*-*n*(*a*) (= Tyana, Dana), § 1, *note*: *K*-*a*-*k*, § 87: *K*-*r*-*a*, § 35.

10 A.  *A* + tang, apparently not *AU* (from *A*-*r*-*ar*-*as*, § 12, and *a*-*san*-*n*-*zi*, § 70).

11.  *Ḫ* (=  , § 15), 'great', 'chief', §§ 35, 49: value from causative formation, § 37, and *ḫu-u-wa-an*, § 36: verb, § 70. (Originally 'water?', cf. Skr. *khā* 'spring'.)

12.  *N*: value from phonetic complement to Sangar, § 3: from *k*-*n*, § 7: 1st plur. suffix, § 58: verbal term -*n*-*zi*, §§ 37, 69: accus. in -*n*, cf. M ii.

12 A.  *N* with a tang, apparently *NU*?, § 37 *note*.

13.  *NI*: value from *Ar*-*ḫu*-*li*-*ni* varying with *Ir*-*ḫu*-*li*-*n*(*a*), § 12, 1st pers. plur. suffix, § 58, and from No. 12.

14. 
M, W: value from 1st sing. suffix, § 58: from *Gar-k-m(?)-s*, § 4: *Ninᵘ*, § 51, and from No. 15. (Original meaning uncertain.)

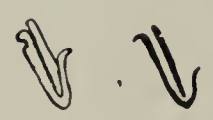
15. 
MI, WI: value from *Ka-r-k-mi-s*, § 6: *mi-'*, § 6: *Mi-zi-ir*, § 37: *Ninᵘi*, § 51. 1st sing. suffix, § 58: verbal ending, § 69.

15 A. 
MI with tang, occurs M xxi, 2: xlvi, 2.

16. 
KAT: value from *Kat-t-e*, § 60: *Kat-n-a-u-t*, § 60: and pronom. base *kat-* in *kat-mi*, &c., § 61. (Originally a spear(?); or perhaps a firestick with socket (?), Indog. *k'ed* 'kindle'.)

16 A. 
No. 16 with a tang, M lii, 5.

17. 
LI: value from *Ir-ḫu-li-n(a)*, § 11: *Targa-s-n(a)-a-li*, § 11: *Gar-a-li*, § 11: *Mut-tal-li*, § 44: *Lal(?)-li*, § 50. (Originally 'knife', Skr. *lû* 'cut').

18. 
N(A): value from *Ṭ(a)-a-n(a)* (Tyana), § 1, *note*: from accus., § 64: name *Ir-ḫu-li-n(a)*, § 9: *Targa-s-n(a)-a-li*, § 11: verbal 1st plur. termination, § 69.

19. 
'son', *NIS*: value from variants *ni-s*, § 15: 'son', § 65.

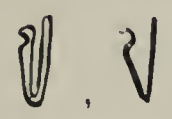
19 A. 
No. 19 with tang (§ 49).

20. 
'Son', probably long form of No. 19, § 73. (Perhaps 'phallus'.)

21. 
NIN: accus. of 'son': varying with *ni-ni*, § 50, and found in names *Nin-n-s*, *Nin-wi*, *Nin-w*, § 50, 51. Phonetic complement *n* before or after, § 51.

22. 
ZI: value from postpositive preposition, § 37, *note*: verbal 3rd plur. termination *-n-zi*, § 37: place-name *Mi-zi-ir* = *Muzri*, § 37, *note*.

23. 
xxi, 5, read No. 83 or No. 84, badly copied: the cast of the monument shows it fairly certainly.

24. 
T(A): value from 2nd sing. suffix, § 46: 3rd sing. verbal termination in perfect, § 45: prep. *t(a)-a*, § 80: place-name *T(a)-bal*, § 80.

25. 
T-E 'to say', §§ 46, 48.

26. 
Numeral (?) probably 100 (M viii, 3, § 1, *note*).

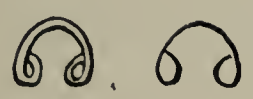
27.  Numeral (?) probably 10 (M viii, 3, § 1, *note*).

28.  § 52.

29.  TA 5.

30.  Occurs as chief's name (?), M xi, 4, 5: xlvi, 2; TA 4, 5, 7.

31.  New Jerabis.

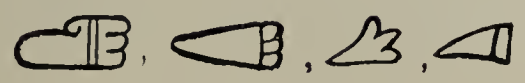
32.  *S* marks nominative, §§ 1, *note*, 64. (Originally a cord, cf. Skr. *si* 'bind'.)

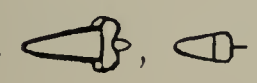
33.  *ḪU* (or perhaps *Ḫ* + some other vowel), value from *Ir-ḫu-li-na*, § 12, *Ḫu-n[a]*, § 37, *note*, and the plural of *ḫ*, No. 11, § 38.

33 A.  No. 33 with a tang, § 38.

33 B.  'lord of chiefs', §§ 38, 50, *note*, and also other compounds.

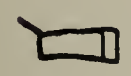
34.  § 33, *note*.

35.  *AR* from *Ar-ḫu-li-ni*, § 12; *A-r-ar-a-s*, § 12: *Ar-am-mi*, §§ 30, 35.

35 A.  No. 35 with a tang, § 55, M i, 1. (Possibly the former is not.)

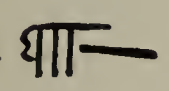
36.  *MAN* (?), from *Sul*(?)-*man*(?), § 51. Cf. § 55.

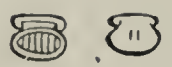
37.  *Ṭ(A)* 'to give': from *Ṭ(a)-a-n(a)* = Tyana, § 1, *note* (properly No. 37 A): *Am-ṭ(a)* = Hamath, § 16: *-n-ṭ(a)*, § 79. (*ṭ(a)* 'give' = Skr. *dâ*.)

37 A.  No. 37 with a tang, M ii, 1: xxxiii, 1.

38.  See note to § 44 and p. 126.

39.  *NAS*, variant of *N-S*, *N-AS*, § 50, *note*.

39 A.  No. 39 with a tang, M xlviii, 3.

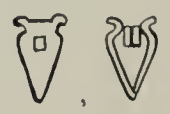
40.  *R*: for evidence see § 9 (a pot: cf. Skr. *ri* 'pour').

41.  Ideogram for a 'bowl', § 1, *note*.

42.  *TAL*: from *Mu-tal;*, § 31 (on the first of these, see § 44).

42 A.  No. 42 with a tang, § 44.

43.  § 55.

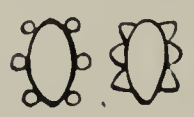
44.  *ḪI* (value from the name *Bar-ḫi*, and formation of causative), §§ 38, 73 (a pot (?)). cf. Skr. *hu* 'pour (an offering)').

45.  § 73.

46.  New Jerabis.

47.  *ID* or *IZ*? only in the name of Benhadad, § 33, *note*: cf., however, M, xliii, 6.

48.  *GAR, KAR* (from *San-gar-s, Gar-k-m-s, Gar-a-li*, §§ 3, 11). See § 74, *note*. (Cf. *Kar-b(a)- . . (?)-ni* (M xxi, 4), with Ḳarparunda of Patina (Shalm. Ob., reliefs)).

49.  The sun-god (?), from the seal, M xliii, 8, see § 52, *note*. Variant probably  § 52 (5).

50.  See M xlv, 8, and translation, p. 133

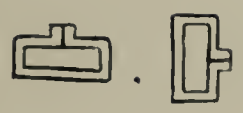
51.  Used in spelling a chief's name, § 82 (6), M xi, 5.

52.  Ideogram for a 'throne', M xxi, 4, lii, 5.

53.  *SUL* (?): a god's name, §§ 51, 55.

54.  'Table', § 33, *note*.

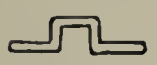
55.  'Altar'?, § 82.

56.  'House'. (Possibly *-R* in some form: see §§ 18, *note*, 44, *note*)

57.  Used in spelling a chief's name, § 82 (6): ideogram used to describe part of a construction or building, M ii, 4.

57 A.  No. 57 with a tang, M xi, 2.

58.  'Shrine (?)', M ii, 6.

59.  See §§ 43, 52: ideogram used to describe part of a construction or building, M ii, 3.

60.  *E*, from *e-a*, § 47: plurals, §§ 46, 64: case-ending of names, § 46.

60 A.  No. 60 with a tang, M iii, B, 2: iv, A, B, 2: xlvi, 1.

61.  *KA*, from *Ka-r-k-mi-s*, *N-ka*, §§ 5, 8.

62.  Determinative for 'god', § 1, *note*.

63.  Ideogram for 'brother', §§ 38, 69: varies with  'ally', § 34 (2). (Probably 'uterus'.)

64.  TA 3.

65.  *GU*, from *Gu-gu-'m* (Gurgum), *Gu-am* (Giammu), § 29.

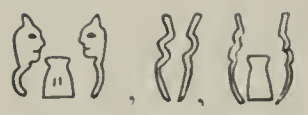
65 A.  No. 65 with a tang (in name *Gu-gu-'m*, § 29, *Gu-g-(n)-nis*, p. 134).

66.  Apparently omitted or inserted at will in two gods' names, §§ 7, *note*, 54, *note*.

66 A.  No. 66 with a tang, M iii, B, 2.

67.  Forms part of a proper name on a new Jerabis inscription.

68.  Ideogram for 'blood brotherhood', §§ 32, 42.

69.  Ideogram for 'feast' (?), p. 121.

70.  'Scribe writing', § 74.

71.  Ideogram for 'to speak', §§ 9, 33, 69.

72.  *PAN* ('face') from *Pan-am-mi*, § 28 (see § 56) in composition: [*TE* (?) =] 'to say': with *ḫi* probably *TE-ḪI*, § 73: name of a place (?), § 48 (4).

72 A.  No. 72 with a tang, M ii, 3: ix, 1: xi, 2, &c.

73.  § 73.

74.  Ideogram for 'to swear?', § 35.

75.  *BAR* from *Bar-ḫi* = Bar-Ḫayâ, and *Br-k* as a variant of *B-r-k*?, §§ 38, 73 = 'man' or 'chief' (if borrowed Aramaic = son, §§ 34 (4), 73). (Skr. *vîrá* 'man'.)

75 A.  No. 75 with a tang, p. 76.

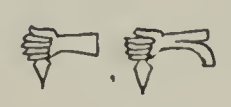
76.  Ideogram for 'chief', p. 52, *note* 3.

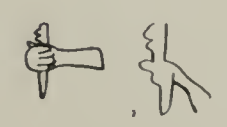
77.  Ideogram for 'ally', §§ 14 ff., 32 ff., § 37.

78.  *AN* 'to place?', 1st pl. suffix, §§ 32, *note*, 58, 68, *note*, 70.

78 A.  Abbreviation for No. 78, § 68, *note*.

79.  Ideogram for 'to take', § 32, *note*.

80.  Ideogram for 'hostile'; 'to fight' (with ), § 32 and p. 118: syllabic value, § 73.

81.  Ideogram for 'to engrave (write)', §§ 32, 69.

82.  Ideogram for 'blood brotherhood', § 32.

83.  *ḤAT* (?), § 92: 'ally', § 67, *note*.

84.  Same as  § 34 (1), distinct (?) from No. 85.

85.  See § 37.

86.  *MUT*, from the name *Mut-tal-li*, §§ 44, 79.

86 A.  Perhaps same as No. 86, M xxiii, 2, 3.

87.  Same as No. 81

88.  Ideogram for 'leg' ('base?'), §§ 18, 64: syllabic value, § 67: used in chief's name, M xvi, A, 1: xix, 1, 3: TA 4.

88 A.  No. 88 with a tang, § 18.

89.  Ideogram for 'to run?', M xi, 4 (§ 1, *note*).

90.  Used in a god's name, M xxix, 11: see M iii, A, 1.

91.  *G, K* 'to come', value from *San(n)-(g)gar-s*, § 3: *k-n*, § 7: *Ka-r-k-mi-s*, § 5: *K-as-k*, § 35: *K-r-a*, § 35: *K-a-k*, § 7, *note*: *U-'m-k*, § 52 (5). (A foot; Ved. *gâ*, 'to go', 'come'.)

92.  Ideogram for 'to go', § 70.

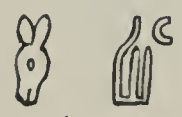
93.  M lii, 3.

94.  *B(A)*, §§ 15, 40.

95.  *IR*, § 15: from *Ir-ḫu-li-na*, § 10: verbal termination, § 10: *As-ir*, § 51: *note*, § 11.

95 A.  No. 95 with a tang, § 10.

96.  *AM*, *'M* (*'W*), from *Am-ṭ(a)*, § 13: *Pan-am-mi*, § 28: *Gu-am* (Giammu), § 29: *Ar-am-mi*, § 30: *Gu-gu-'m* (Gurgum), § 29: *U-'m-k*, § 52. (Ram's head; Skr. *ávi* 'sheep').

97.  *U*, see § 49, *note*, and § 77.

97 A.  No. 97 with a tang, M v, 2: vi, 4.

98.  M ix, 3: x, 4.

99.  *AS*, variant of *s* in composition: value from *K-as-k*, *As-ir*, *As-r-a*, § 29, *note*. (Ibex' head: Skr. *ajá* 'he goat'.) (Is the animal's head on the 'Boss of Tarkondemos' not an ibex, but a goat?)

100.  Hare, used in spelling a chief's name, M xix, 7: M xxi, 1 (?), 3, 5: xlvi, 1: TA 4, 5.

101.  Used in spelling the name of the god Targu, § 11 (value *TAR*(?)).

101 A.  No. 101 with a tang, § 18. Used in spelling a chief's name, M xvi, A, 1, and a new Jerabis inscription.

102.  *BAL*, from *Ṫ(a)-bal-* 'place', § 50. (Horn with tang.)

103.  M v, 3(?): TA 7.

104.  Postpositive determinative for 'country', 'city'.

105.  Postpositive determinative for 'country', 'city', §§ 1, 44, *notes*.

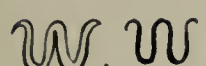
106.  Ideogram for 'lord', § 1, *note*, § 34 (5), § 44, *note*.

107.  See translation to M xlv, 8, p. 133.

108.  Ideogram probably for 'tablet' or 'stela': see translation to M ix, *notes*, p. 119.

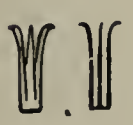
109.  Used in spelling a personal name, M x, 2; and a new Jerabis inscription.

109 A.  No. 109 with a tang, M xi, 4.

110.  Ideogram for the god Tesup (lightning ?), §§ 1, 33, *notes*

111.  M ii, 5.

112.  Ideogram for 'tree', 'wood', § 1, *note*, M ii, 3: xxxiii, 3.

113.  Possibly *UN*, § 71, *note*.

113 A.  No. 113 with a tang, § 73.

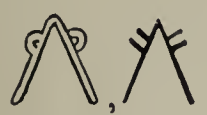
114.  § 64, *note*: syllabic value, § 67.

115.  In a chief's name, § 67 (in a new Jerabis text, and M xv, B, 4); cf. M xxix, 13.

116.  M xxxii, 5; TA 2 (used in a god's name).

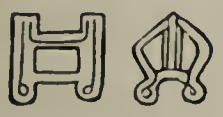
117.  § 73.

118.  Possibly No. 104, M ii, 3, 4.

119.  *LAL* (?) (or *LA* ?), value from *Lal* (?)-*li* (?), § 50 (='seal'?, see translation to M xvi, A, p. 112).

120.  M xi, 3.

121.  M ix, 4: x, 6.

122.  Ideogram for 'ancestors', § 50 (grave shaft and coffin (?)).

123.  M xii, 3, 2.

124.  In composition, M v, 2: vi, 4: xxiv, A: lii, 3, 4.

125.  M vi, 4, 5.

126.  M viii, B, 2.

127.  M ii, 6: xix, 20: xlvi, 3.

II.—*Some Fourteenth-Century Accounts of Ironworks at Tudeley, Kent.*
By M. S. Giuseppi, *Esq., F.S.A.*

Read 5th December, 1912.

I have ventured to bring the documents which form the subject-matter of this paper to the notice of the Society because they seem to suggest a possible source of material to any one who may have a mind to be the future historian of the iron industry of the Weald. Due attention has already been paid to the later and more distinguished period of the history of that industry, and we are now able to form a fair idea of its extent and the processes in use, after the discovery of the art of casting and the subsequent employment of the works, in the production of the iron ordnance of the kingdom, had made it something more than of mere local importance. For the earlier period, when casting was not, our knowledge of the industry must probably remain imperfect, but that it may possibly be a little less vague than it is at present will, I hope, appear from the evidence which I now produce.

The documents have, moreover, a further and a more general interest, in that they illustrate some of the social and economic conditions of fourteenth-century England in a little country village, at a time when two of those devastating plagues, which became the most potent factors in the subsequent development of those conditions, were laying waste the whole kingdom.

The documents which first attracted my attention to this subject consist of a little roll of four separate accounts, on as many small skins of parchment, of the ironworks at Tudeley in Kent, covering periods of varying lengths between the years 1350 and 1354. The roll is preserved among the records of the Exchequer at the Public Record Office, and is now included in the class known as 'Accounts Various', of which an official catalogue has recently been published.[1]

But although, as now classified, the accounts stand by themselves apart from any correlative matter, it requires no very profound knowledge of records to see

[1] *Public Record Office Lists and Indexes*, no. xxxv. The Tudeley accounts are best compared with those just over half a century later (1408-9) of the ironmaster of the forge at 'Byrkeknott' near Bedburn, in Weardale, Durham, printed by Mr. G. T. Lapsley in the *English Historical Review* for July, 1899 (xiv. 509-29). The Byrkeknott accounts give the working expenses week by week, and are thereby more detailed. On the other hand, they give no account of the iron sales.

that they are not complete in themselves. They are the accounts of some officer who is himself the subordinate of another officer. Further, the occasional references to a lady (*domina*), who is evidently the owner of the estate to which the ironworks belong, show that though the accounts have been, no doubt for centuries, among the records of the Exchequer, they did not originally belong there, and relate to no part of the revenues of the Crown which it was part of the business of that highly organized department to administer. Fortunately, though it may readily be conceived that the task might have been a far harder one, there is no difficulty in the present instance in reconstituting the nucleus of the collection to which our accounts must once have belonged. The superior accounting officer to whom the keeper of the ironworks has to hand over his takings is variously described as the receiver or chamberlain of Southfrith. The manor or chace of Southfrith was an extensive district with a park enclosed in the southern portion of the lowy (*leuca*) of Tonbridge, which formed part of the great possessions of the Clares, earls of Gloucester and Hertford. It is now identified with Somerhill Park, and on its eastern side adjoins the parish of Tudeley.[1]

On turning to the list of those original territorial accounts in the Exchequer of receivers, bailiffs, and other manorial officers, to which the class-description 'Ministers' Accounts' has for long been appropriated, we find a series of twenty-four accounts of the chamberlain or receiver of Southfrith extending with some intervals from the third to the forty-ninth year of Edward III (1329 to 1375), and thus including the years covered by the accounts of the ironworks.[2] The most cursory examination of these Southfrith accounts is enough to show that those of the Tudeley ironworks are inseparably connected with them. For not only are the gross receipts and expenses in connexion with the ironworks duly entered by the accounting officer for Southfrith, but the earlier detailed accounts of these ironworks appear on the dorse of his roll as an integral part of his more general account. It is due solely to the fact that later on the ironworks account grew too big for this process and had to be written out on separate skins, that a once private collection of documents has now become disintegrated.

This, however, is by the way. What I propose to show is that this little series of documents thus reconstituted—the merest fraction, be it remarked, of the whole collection of Clare documents which have found their way into the Exchequer—enables us to follow the history of what may have been a typical Wealden ironworks in the fourteenth century over a period of nearly fifty years, and to gain some idea of the extent of its business, of the cost of production of the iron, and in a vague way of the process in use and of the implements which made up the stock-in-trade.

[1] Hasted, *History of Kent* (1798), v. 230.
[2] *Public Record Office Lists and Indexes*, no. v, p. 177.

The lady who appears as the owner of Southfrith with the ironworks at Tudeley during the greater part of the period was Elizabeth, a granddaughter, through her mother Joan of Acre, of Edward I, and the youngest sister and co-heir, upon his death at the battle of Bannockburn in 1314, of Gilbert de Clare, earl of Gloucester and Hertford. Elizabeth, who had married John de Burgh, the son and heir of Richard, earl of Ulster, was already at her brother's death in her first widowhood, but although she afterwards married two other husbands within a very few years, and survived the third for many years, it is always as Elizabeth de Burgh, or as the Lady of Clare, for her purparty in her brother's estate included the lordship of Clare as her principal inheritance, that she is known until her death in 1360. The important manor and castle of Tonbridge went to her second sister Margaret, who had married Piers Gaveston, and secondly Hugh de Audley, but Elizabeth had the manor and chace of Southfrith.[1]

We may now turn to the accounts, and first as to the general history of the Tudeley ironworks during the period, and their management by the lady's officers. They first appear in the account of the keeper of Southfrith chace for the year 1329–30, and in the body of it we find that the net issues amounted to £8 3*s.* 8½*d.*[2] The more particular account showing how this amount was arrived at is set out on the back of the roll. Throughout the accounts, when in Latin, as is usually the case, the word which we translate 'ironworks' is *fabrica*. In one or two cases French is used, when the word is *forge*. It is evident at this first appearance of the works that they were then directly under the management of Elizabeth de Burgh's own officer. In the next surviving account,[3] made a couple of years later, the same system is adopted, though the keeper of the chace gives place to an officer who is usually called the chamberlain but occasionally the receiver. This system continues until Easter, 1334, from which date the works were leased at a yearly rent or farm of one mark (13*s.* 4*d.*),[4] and for a time passed out of the immediate control of the owner. Here and there we get a hint that other works were in existence in the neighbourhood. In 1332–3, for instance, when the Tudeley works were still under his management, the chamberlain accounts for the receipt of 12*s.* for stones (*petrae*), that is to say ore, sold for making three hundred blooms of iron.[5] The item does not agree with anything found in the particular account of the Tudeley works that year, against which indeed nothing was charged for the ore taken from the estate, so long at any rate as the works were in the owner's hands. In 1340 another ironworks is mentioned at Newefrith juxta Bournemelne,[6]

[1] She was the foundress of Clare Hall, Cambridge. Her will, dated Sept. 25, 1355, was proved before Archbishop Islip in the church of the Minoresses of the order of St. Clare, outside Aldgate, London, on Dec. 3, 1360. It is printed at length in Nichols, *Royal Wills* (1780), pp. 23–43.

[2] P.R.O. Ministers' Accounts, Bdle. 890, no. 22.

[3] *Ibid.*, Bdle. 890, no. 24. [4] *Ibid.*, Bdle. 890, no. 26. [5] *Ibid.*, Bdle. 890, no. 25.

[6] Bournemill is now a farm to the south-west of Somerhill Park.

and appears at this date to have been more valuable to the estate than the Tudeley works, for it had been leased for a year at five marks (£3 6*s.* 8*d.*).[1] The lessee was Robert Springet, presumably a brother or kinsman of the Tudeley lessee, Thomas Springet, who appears at times in the Southfrith accounts as the purchaser of coal (charcoal) and wood for fuel for his works.[2]

In 1343 the Tudeley works were rebuilt or very considerably repaired at the cost of the owner. The items of expenditure, which amounted to £1 10*s.* 4½*d.*, may be of some interest:[3]

	s.	d.
In ij carpentariis per xxij dies conditis pro carpentaria fabrice apud Teudele facienda, capientibus per diem vij d.	xij	x
In mille iiij^{c} pedibus bordarum faciendis pro copertura dicte fabrice, pro centum v d.	v	x
In ij hominibus faciendis lacch' et stanchons ad idem unum diem . .		v
In iij millia viij^{c} clavis pro eadem, precio c. ij d. ob.	vij	xj
In mille v^{c} prignail pro parietibus dicte fabrice	x	ob.
In meremio ad idem cariendo		viij
In parietibus pynnandis et plastrandis in grosso		xviij
Item in gumphis et vertinellis ad dictam fabricam		iiij

The works so rebuilt did not hold out long, for in our next account, three years later, in 1346, we find Thomas Springet's rent of 1*s.*, for the site of his ironworks, in default because the works were lying waste and unworked for the year.[4]

There is another interval in the accounts, and when we resume the history it is four years later, in 1350,[5] and after the visitation of what is afterwards called the First Pestilence, that is, the Black Death of 1349. The ravages of the disease in this quiet country-side district are well emphasized in the accounts, and serve to remind us that its effects were not confined to the great towns. The old defaults of rent, still including the 1*s.* for the site of the Tudeley works, are accounted for and amount only to 15*s.* 4*d.* Quite out of all proportion to these are the new defaults 'by reason of the pestilence, this being the 2nd year'. They amount to £5 3*s.* 11¼*d.*, and include numerous small holdings and homesteads, all in the lady's hands for want of tenants. Included in them also may be the sites of two other ironworks which had been leased to one Thomas Harry. The word used (*fabrica*) might equally, of course, have been applied to a small blacksmith's forge, but it may be noted that the rent of each site (1*s.*) is the same as that of the Tudeley ironworks.

It is in the last quarter of this year 1350, viz. from October 16, that the first

[1] Ministers' Accounts, Bdle. 891, no. 5.

[2] Mr. Leland L. Duncan, M.V.O., F.S.A., informs me that the Springates still exist as an old Kentish family.

[3] Ministers' Accounts, Bdle. 891, no. 7.

[4] *Ibid.*, Bdle. 891, no. 8.

[5] *Ibid.*, Bdle. 891, no. 9.

of the separately made-out accounts for the Tudeley ironworks begins.[1] From the expenditure on them, which, with the cost of production of the iron, exceeded by £2 19*s.* 10¼*d.* the total receipts from its sale, amounting to £32 14*s.* 1*d.*, it is evident that very considerable repairs and probably a complete refitting with new tools were required. I shall go into the matter of the tools later on. The repairs to the works include carpentry, nails and daubing, amounting to 12*s.* 2*d.*, and in making the 'arrastrium', or hearth, of the said works, 18*d.* The account covers a period of forty-one weeks to July 30, 1351, and the accountant is the former lessee or farmer, Thomas Springet, who is now described as the keeper of the works, and is acting as a servant of Elizabeth de Burgh, from whom he receives by agreement for the time of the account 20*s.*, and 10*s.* a year for his dress (*roba*). Notwithstanding the deficit in the income and expenditure account, the keeper states that the *profectus* this year of the works, meaning apparently the assets, which include the new-constructed house and the iron remaining in stock (68 blooms), is £11 5*s.* 7*d.*

Between this account and the next it is evident that there must have been at least one other that is now missing. Thomas Springet is still keeper of the works, and his next account is from January 14 to July 31, 1352, a period of twenty-eight weeks and two days. £5 3*s.* 1*d.* is handed over to the chamberlain of Southfrith as the balance on this account.

The works would appear to have lain idle from the date on which this account was completed until September in the following year (1353), when the receiver of Southfrith, John Parker, himself worked them as keeper for seven weeks into November. His receipts, which included the above-mentioned balance from Springet, exceeded his expenditure by 18*s.* 11*d.*, and this amount he transferred to his account as receiver.

In the following year, 1354, Thomas Springet again took over the management for a period of twenty-five weeks, and was able to hand over £2 2*s.* 9*d.* to the receiver as the result of his labours.

It was now decided to revert to the former experiment of farming out the works, and accordingly shortly after Michaelmas, 1354, the receiver made the journey from Southfrith to Clare to learn the lady's will about the lease. 'In expenses of the receiver going from Southfrith to Clare to the lady to know the lady's will about the lease of the ironworks of Teudele by order of R[obert] Maresch[al] together with the ferry at Gravesend, going and returning, 2*s.* 4*d.*'[2] The result was the following lease, dated at Elizabeth de Burgh's Essex manor of Bardfield on October 20, 1354:

[1] Exchequer Various Accounts, Bdle. 485, no. 11.
[2] Ministers' Accounts, Bdle. 891, no. 12.

Hec indentura facta apud Berdefeld' vicesimo die mensis Octobris anno regni regis Edwardi tercii post conquestum xxviij^m^ inter nobilem dominam dominam Elizabetham de Bourg dominam de Clare ex una parte et Ricardum Colpeper[1] ex altera testatur quod predicta domina Elizabetha dimisit et ad firmam tradidit predicto Ricardo fabricam de Teudelee in Southfrith', Habendum et tenendum eidem Ricardo a festo Sancti Michaelis proximo ante datum presencium usque ad finem termini trium annorum proximorum sequentium plenarie completi, Reddendo inde per annum durante dicto termino trium annorum viginti marcas sterlingorum ad festa Pasche et Sancti Michaelis equalibus porcionibus incipiente primo termino solucionis ad festum Pasche proximum sequens post datum presencium. Et predicta domina concedit quod dictus Ricardus habeat quolibet anno dictorum trium annorum boscum sufficientem pro quinquaginta duodenis carbonum faciendis et hoc per visum et liberacionem camerarii de Southfrith qui pro tempore fuerit per talliam inde inter eos factam. Similiter et orston pro tribus centenis blom' quas idem Ricardus fodere faciet custibus suis propriis et quod [*sic*] talliabitur per camerarium in forma predicta. Ac eciam predictus Ricardus habebit de elyngwode per estimacionem duodecim carectarum per liberacionem predicti camerarii. Et predicta domina Elizabetha sustentabit et faciet domum fabrice predicte sumptibus suis propriis durante termino predicto. Et liberabuntur predicto Ricardo in fabrica predicta in recepcione ejusdem duo paria de belyes precii xiij s. iiij d. una securis pro ferro scindendo precii iij d. unum angire precii viij d. duo toyers precii xij d. unum martellum precii j d. unum cribrum precii j d. unum par de loves precii ij s. vj d. duo alvei pro petris importandis precii j d. una serura cum clave precii iij d.[2] quequidem bona omnia predicta predictus Ricardus in fine trium annorum predictorum restituet predicte domine et ministris suis vel satisfaciet ei de precio eorundem ad electionem prefate domine. In cujus rei testimonio presenti indenture partes predicte sigilla sua alternata apposuerunt. Data apud Berdefeld' die et anno supradictis.

I have transcribed this lease from what is evidently a copy, for it has no indication of ever having borne any seal, annexed to the chamberlain's account for 1355 to 1356.[3] Annexed also to a preceding account for seven weeks only

[1] Mr. Duncan thinks there can be very little doubt that the lessee is to be identified with the Richard Colepeper, living in 1365, in the pedigree of Colepeper of Bayhall printed by Colonel F. W. T. Attree, F.S.A., and the Rev. J. H. L. Booker in *Sussex Arch. Coll.*, xlvii. 56. The Colepepers were an important family in Pembury, which adjoins Tudeley, and Sir John Colepeper, brother of Richard, largely repaired Pembury Church, put on the present roof, and placed the arms of himself and his wife on the buttresses.

[2] This list of the tools at the works may be compared with the similar list at the end of Springet's account for 1354, printed in the Appendix to this paper. The 'angire' above appears as an 'aundire' (andiron) in the latter, whilst the 'unum par de loves' (tongs) must be the 'j par lanost' in the account. This last word is evidently an error for the 'banostis' in the earlier account for 1350–1. The implement must be the 'bannasters' mentioned twice in the Byrkeknott account roll in 1409, a word for which Mr. Lapsley confessed himself unable to find a satisfactory explanation (*Eng. Hist. Rev.*, xiv. 527). They were used for lifting the ore: 'in j pari banastres de novo facto pro petra inportanda, xij d.' (*Ibid.* 528.)

[3] Ministers' Accounts, Bdle. 891, no. 13.

from Michaelmas, 1354, is a very full memorandum of its terms.[1] The chamberlain's account for the whole year from Michaelmas, 1354, to Michaelmas, 1355, when the receipt of the first year's rent from the new lease would have been recorded, is not now forthcoming, but its receipt for the two following years is duly entered.[2] The amount of this rent or farm, twenty marks, may be contrasted with that of the previous lease in 1334 of only one mark. The difference may, no doubt, be very largely attributed to the extraordinary rise in prices which resulted from the Black Death, a rise in many ways well indicated in the accounts now before us. In the case of iron the increasing rise in its price was now indeed for the first time engaging the attention of the legislature. A statute passed in the very year of this lease forbade the export of iron either made in the realm or imported into it, and gave the justices assigned to administer the Statute of Labourers power to inquire of those who sold iron at too high a price, and to punish them according to their offence.[3]

The chamberlain's account for the year beginning Michaelmas, 1357, when Richard Culpeper's lease was determined, is missing, but it would seem that he obtained a renewal of it, as there is annexed to an account ended in June, 1359,[4] a note that £6 13*s.* 4*d.*, half the yearly farm 'du forge de Teudele a terme de Pasques en cas que la ferme se tiegne', was to be levied. There follows another hiatus in the sequence of the accounts, during which England was visited by what is here called the Second Pestilence, that of 1360-1. When we next hear of Southfrith affairs it is for the year beginning Michaelmas, 1362, and here again we have evidence of the havoc wrought by the new visitation.[5] The defaults due to the Second Pestilence accompany the entries of the defaults of rent due to the First Pestilence, which, though they might be considered to have long been wiped out by the new leases made by Elizabeth de Burgh, still continue to appear in the accounts, such is the tendency of these documents to become stereotyped in form. Amongst them we have to note our ironworks: 'Of the farm of Teudelee lately leased to Richard Culpeper together with wood and oreston bought for the same he answers nothing this year for default of a farmer and workman by reason of the Second Pestilence.'

Elizabeth de Burgh was dead by this time, and only one subsequent account for Southfrith in the fourteenth century seems to be now preserved. It is for the year 1374-5,[6] and again we are told that the farm of the Tudeley ironworks yields nothing. A few Southfrith accounts for the following century are in the Record Office. They give few details, and no indication of the existence of any ironworks.

[1] Ministers' Accounts, Bdle. 891, no. 12.
[2] *Ibid.*, Bdle. 891, nos. 13, 14.
[3] Stat. 28 Edw. III, c. 5.
[4] Ministers' Accounts, Bdle. 891, no. 15.
[5] *Ibid.*, Bdle. 891, no. 16.
[6] *Ibid.*, Bdle. 891, no. 18.

So much for the general history of the Tudeley ironworks to be gleaned from these documents. We may now turn to them for such particulars of the conditions of the industry in the fourteenth century as they may be able to afford. In this respect it will have been inferred that it is for those periods when the works were managed by Elizabeth de Burgh's own officers that the accounts are most instructive.

First, as to the amount of iron annually produced and sold. The iron is made and sold by the bloom only, there being, of course, no indication of casting at this date. Between the years 1330 and 1334 about 200 blooms a year or rather more seem to be the average output of the Tudeley works. In 1330, 194 were made and sold; in 1332, 224 were made and 192 sold, the remainder going to the workmen in part payment for their labour. In 1333, 231 were made, and in 1334 before Easter, 112; 198 of the previous year's making were sold in the latter year. The market price of the bloom at this period appears to be constant at 1*s.* 8*d.* In our second period, 1350 to 1354, after the Black Death, this price has in some cases more than doubled. In 1350-1 the works produced 252 blooms, and sold 184 at 3*s.* 5*d.*, 3*s.* 6*d.*, and 3*s.* 9*d.* each. In the following year, 1352, the price has dropped somewhat. Between January and July 143 were made and sold at 3*s.* 1*d.*, 3*s.* 2*d.*, and 3*s.* 4*d.* During seven weeks in 1353, 39 blooms were made and sold at 3*s.* 2*d.*, but in the following year, when legislation was first resorted to in order to keep down the price, the cost of the bloom has again gone up to 3*s.* 4*d.* and 3*s.* 6*d.* In the half-year 138 were made and sold at this price.[1] Save that in 1351 the iron 'graynes' were sold for 6*d.*, and in 1352 for 3*d.*, the bloom is the only product of the works.

Then as to the cost of production, both in raw materials and labour. The principal raw materials are the fuel, which was of course charcoal, and the ore, the latter called variously in these accounts *petrae* or *lapides*, or in English 'orston'. It was the abundance of both wood that could be burnt into charcoal and iron ore on the spot that gave the industry its natural birth. The fuel is usually bought in the lady's chace, though occasionally outside 'in the country' (*in patria*). In the earliest accounts, from 1330 to 1333, charcoal (*carbones*) is sold by a quantity called the *decena*, 'every decena containing 24 quarters.' In 1334 and thenceforth the measure is the dozen (*duodena*), the dozen, on the baker's principle, being reckoned at fourteen *summagia* or sumpter loads.[2] So far as price is concerned

[1] We are given no indication of the probable size or weight of the bloom. Apparently at Tudeley very rough-and-ready methods were the rule, as the accounts contain no mention of such appliances as the 'mensure pro petris minere mensurandis qualibet continente ij bussellas' and the 'unum par balances pro ferro cum ejusdem ponderibus', which appear in the account of the Byrkeknott works, where the bloom is definitely stated to have contained 15 stones, each stone consisting of 13 pounds (*Eng. Hist. Rev.*, xiv. 518, 529).

[2] The 'duodena' was the measure for charcoal at Byrkeknott. Here its component part was the

there does not appear to have been much difference between the *decena* and the *duodena*. From 3*s.* 6*d.* to 4*s.*, including presumably carriage, is charged for the *decena* between 1330 and 1333; in 1334 the dozen of coals, including carriage to the works, costs 3*s.* 10*d.* In 1339 coals were sold at Southfrith to the farmer of the Tudeley works at 4*s.* 6*d.* the dozen. Consistently with the general rise, this price has reached 8*s.* in 1350 and remains at that figure throughout the accounts, the keeper of the works having to pay in addition 7*d.* for carriage. Exactly how much in present-day standards the *decena* or the *duodena* may be said to represent I cannot say. We hear of a half-dozen of coals being made of the croppings of an oak which had been felled to mend certain palings.[1] In his accounts between 1350 and 1354 the keeper of the ironworks states the exact quantity of the coal he had used in making the blooms. Somewhat roughly it works out at an average of rather more than $15\frac{1}{2}$ dozen of coals to the hundred blooms.

The ore is reckoned by the quantity of blooms which can be extracted from it, and the only expenses in bringing it to the works, whilst these are worked by the manor officials, are the costs of digging and carriage.[2] In the first few years the cost of digging ore for a hundred blooms is 18*s.*, to which has to be added 5*s.* for carriage. In 1334 the cost of digging has risen to 20*s.* the hundred, and we are then without the means of estimating any further change in it until after the eventful year 1349, when we find in 1350–1 it has risen to 27*s.* and the cost of carriage to 8*s.* The former drops to 25*s.* in 1352, and remains thereabouts in 1353 and 1354, when each bloom costs $3\frac{1}{4}$*d.* to dig up. In 1350–1 the digger of the ore has 5*s.* given him for a tunic by agreement with the chamberlain.

'Elyngwode' was mentioned in the lease to Richard Culpeper as one of the materials he might have from the estate for use in the ironworks. Usually, no doubt, when the works were farmed out, it would be one of the things that the farmer would have to buy from the estate. In 1338–9, for instance, the receiver sold three faggots for 'elyngwode' to Thomas Springet, the then farmer of the works, for 1*s.* 4*d.*[3] 'Elyng' the blooms is a process constantly mentioned in the accounts. It is the Saxon word *ælan*, 'to burn,' which we now have in our word 'anneal', and its Latin equivalents here are *ardere*, *comburere* or *conflare*, or the word itself is latinized as a gerundive *elandus* or *elendus*. The process must be that which John Ray, writing of the Wealden industry in 1672, states as necessary before the iron could be put in the furnace. The several sorts of ore had to be

'seme', which Mr. Lapsley describes as 'a measure of wood or charcoal, probably so much as one horse would draw. It was the twelfth part of the duodena' (*Eng. Hist. Rev.*, xiv. 519, *note*).

[1] Ministers' Accounts, Bdle. 891, no. 2.

[2] At Byrkeknott the mine was more precisely measured by the 'duodena', which in this case contained three fothers (*Eng. Hist. Rev.*, xiv. 518). The fother is a weight still used for lead, and usually represents about 2,400 pounds.

[3] Ministers' Accounts, Bdle. 891, no. 2.

first mixed together, placed with alternate layers of charcoal and burnt, in order to reduce it to a sufficiently 'mollified' condition.[1]

The next items of interest for which we may go to these accounts are those concerned with the cost of labour at the works. The keeper's own fee and the yearly suit of clothes allowed him in 1351 we have already noted. These do not figure as items in the earlier accounts, when apparently the head officer of the manor acted as keeper of the works. We have inferred that the first process would be that of burning or calcining the stones. Throughout both periods of the accounts the payment for this never varies from 2*s.* the hundred blooms. 'In dictis petris comburendis ad supradictas blom' ij s. iij d., pro C. ij s.' we read in 1334, and again twenty years later, in 1354, 'In clyng vj^{xx} xviij blomis ferri ij s. viij d., pro centena ij s.'

Naturally the heaviest item in the wages bill was the pay of the skilled labour of the blowers. We are not told the number of these in the earlier accounts from 1330 to 1334. In the latter year they are called in English the *Forblouweris* (fore-blowers), a term which in the two preceding years' accounts has been rendered in Latin *anteriores flatores*. Their rate of pay varies somewhat. In 1330 they get between them 5½*d.* for each bloom made. In addition to this they get a sort of bonus, a 'stipendium quod dicitur gersuma', of 3*s.* 6*d.*, and there is always their drink-money, never, however, a very heavy item. In this instance it is 20*d.* From 1332 to 1334 they are paid by a different system, receiving only 2¼*d.* for each bloom made, but instead they are allowed to have for themselves every seventh bloom. The *gersuma* and drink-money they still have, the former in 1334 being 3*s.* for the half-year.

In 1350–1, here at any rate, the price of labour has already advanced after the Black Death. We now hear definitely that there are four blowers, called respectively the master-blower, who in 1354 as John Tubbe is mentioned by name, and the second, third, and fourth blowers. From 1350 to 1353 they receive among them 7½*d.* or 7¾*d.* for each bloom, a payment which in 1354 advances to 9*d.* The bonus or *gersuma* is given them on a graduated scale according to their rank, save in 1353, when 1*s.* 6*d.* is paid for thirty-nine blooms. In 1350–1 the master-blower receives this bonus at the rate of 2*s.* the quarter-year, the second blower at 11*d.*, the third at 9*d.*, and the fourth at 8*d.* In the following year, both the second and third have advanced to 1*s.* for the quarter; and in 1354 the master-blower has 8*s.* for three quarters, the second 4*s.* for a half-year, and the third and fourth for three quarters 5*s.* 11*d.* and 4*s.* respectively. Drink-money is still paid, being as is stated 'of fixed custom' 1*d.* a week, which divided amongst four men does not seem excessive.[2]

[1] Professor Gowland informs me that the process is more correctly termed 'calcining'; 'arsura ferri minere' is the expression found in the Byrkeknott accounts (*Eng. Hist. Rev.*, xiv. 519).

[2] A pennyworth of ale per week amongst the workmen was the amount usually allowed at Byrkeknott half a century later (*Eng. Hist. Rev.*, xiv. 512).

Our greatest difficulty in these accounts arises from the names of the various implements, items for the purchase and repair of which are of constant occurrence, for here in a few cases the ordinary sources of reference seem to fail us altogether. Some of these implements, which however offer little or no difficulty, we have seen enumerated in the lease to Culpeper. The most expensive of them are the bellows, two pairs of which were here valued at 13*s.* 4*d.* In 1350–1, when the works had a new outfit, 12*s.* was paid for a pair of bellows, and a second pair was made at the works: 'Item in white leather and 3 hareskins bought for the said bellows 3*d.*; item in one new oxhide bought for covering the said bellows 5*s.*; item in making 26 egyn for the twyers 6*s.* 6*d.*, for the ege 3*d.*; item in making the said bellows 6*d.*' What the 'ege' was I cannot say, but conceive that it may be an edge, which in Old English is sometimes used for a sharp implement. Possibly it has some connexion with the *egyson*, which in the same account costs 1*d.*, and which again is possibly the *augisen*, which costs 2*d.* to mend in 1354.

We should readily infer from these accounts that the process of reducing the wrought iron from the ore thus in vogue in Kent in the fourteenth century was of the simplest nature, no doubt akin to the primitive Catalan forges which I believe still survive in the Pyrenees. The bellows must have been worked by hand or by the feet, for there is no indication of that use of water-power by means of a mill-wheel, which was the case at the Durham works a bare half-century later, and which afterwards became so marked a feature of the Wealden works.[1] It would not appear that the iron was subjected to more than one smelting process after the preliminary calcining. At the Byrkeknott works there were two furnaces, the 'blomeharth' and the 'strynghartth', and from the items of expenditure some care was evidently taken in cutting up the finished product into blooms or bars[2] of uniform size. The sole business of the Tudeley works was to produce the iron in a form which admitted of its ready distribution amongst the village smiths, who would convert it to its required uses.[3]

In conclusion, I must express my great indebtedness to my colleague, Mr. Hilary Jenkinson, F.S.A., who has spent much time and care in examining with me the accompanying transcripts of the accounts. The frequently faded condition of the originals and the unfamiliarity of some of the terms have made this a task of no little difficulty, and I am further indebted to him for several useful suggestions in their interpretation.

[1] At Byrkeknott a good deal of what manual labour was required at the bellows could be done by a woman. Women also were employed in breaking up and sifting the ore previous to smelting it (*Eng. Hist. Rev.*, xiv. 511, 512).

[2] *Esperduta*, a word which I have not met in connexion with the Wealden industry.

[3] See Thorold Rogers, *Six Centuries of Work and Wages*, 87, 88.

APPENDIX.

Accounts of the Tudeley Ironworks.

1330.

[P.R.O. Ministers' Accounts, Bundle 890, no. 22.]

Compotus Ricardi de Grofherst custodis chacie domine Elizabethe de Burgo domine de Clara de Southfryth a festo Omnium Sanctorum anno regni regis Edwardi tercii a conquestu tercio usque [ad] festum Sancti Michaelis proximum sequens videlicet regni regis predicti quarto.

. . . . . .

Idem respondet de viij li. iij s. viij d. ob. de exitibus fabrice ut extra.

Summa—viij li. iij s. viij d. ob.

. . . . . .

[*In dorso*]

Compotus de fabrica de Teudele anno regni regis Edwardi tercii a conquestu quarto.

Idem respondet de xx li. [di. *struck through*] xj d. ob. de ix^{xx} xiiij blomos ferri de exitibus fabrice predicte venditis precium C. xv marce dimidium. Et de xxviij s. de bosco mortuo in Southfryth vendito pro carbonibus faciendis ad dictos blomos conflandos.

Summa—xxj li. viij s. xj d. ob.

[Item] in petris fodiendis ad ix^{xx} xiiij blomos cum cariagio earundem ad furnum xl s. In eisdem elendis iij s. vj d., pro C. ij s.

In xxxvj decenis carbonum emptis pro dictis blom' faciendis vj li. vj s. pro decena iij s. vj d. In salariis operariorum pro ix^{xx} xiiij blom' faciendis iiij li. viij s. xj d. pro capite v d. ob. In potagio operariorum xx d. In gersuma eorundem iij s. vj d. In utensilibus reparandis cum unncto [*sic*] empto ad follia xx d.

Summa—xiij li. v s. iij d. Et debet viij li. iij s. viij d. ob. Et respondet infra.

1332.

[P.R.O. Ministers' Accounts, Bundle 890, no. 24.]

Compotus Johannis de Me . . . camerarii domine Elizabethe de Bourgo domine de Clare del Southfrith ab incrastino Sancti Michaelis [anno] regni regis Edwardi [tercii a] conquestu v^{o} usque ad idem festum anno regni regis ejusdem sexto per j annum.

. . . . . .

[*In dorso*]

Compotus fabrice de Teudele anno regni regis Edwardi tercii a conquestu sexto.

Idem respondet de cc xxiiij blom' factis de exitibus fabrice hoc anno. De quibus in mercede operariorum pro dictis blom' faciendis xxxij blom', capientium pro opere suo septimam blom'. In vendicione ix^{xx} xij blom'.

Idem respondet de xvj li. de ix^{xx} xij blom' ferri venditis, precium blom' xx d.

In petris fodiendis ad cc xxiiij blom' ferri xl s. iiij d., pro C. xviij s. In cariagio earundem ad furnum xij (?) s. ij (?) d. q^{a}. In dictis petris [confl]andis iiij s. vj d., pro C. ij s. Item solutis anterrioribus flatoribus pro opere suo de consuetudine xlij s. [pro] qualibet blom' ij d. q^{a}. Item

. . . carbonibus [em]ptis, qualibet decena continente xxiiij [quarteria] carbonum ad dictas blom' faciendas . . . elandis vj li. xiij s. iij d., pro decena iij s. iij d. In cariagio eorundem ad fabricam xiij s. viij d. pro decena iiij d. In potagio operariorum ij s. In reparacione diversorum utensilium dicte fabrice ij s. In stipendio operariorum quod dicitur gersuma iij s.

Summa—xij li. xij s. xj d. q[a].

Summa totalis expensorum xij li. xij s. xj d. q[a]. Et debet lxvij s. [ob. q[a].] Unde respondet ut infra. Et sic quietus hic.

1333.

[P.R.O. Ministers' Accounts, Bundle 890, no. 25.]

Compotus Johannis de Mesynglegh camerarii domine Elizabethe de Burgo de Clara del Southfrith ab incrastino Sancti Michaelis Arcangeli anno regni regis Edwardi tercii a conquestu sexto usque festum Sancti Michaelis Arcangeli anno regni regis ejusdem septimo per j annum.

Idem respondet de . . . .

Et de xij s. de petris venditis ad iij[c] blom' ferri, precium C. iiij s. Vendicio petrarum.

Summa—xij s.

. . . . . .

In allocacione f[c]acta fabris pro c iiij[xx] xviij blom' factis apud Teudel' que remanent extra usque in annum futurum vij li. x s. xj d. ob. q[a]. Allocacio fabrorum.

. . . . . .

[*In dorso*]

Compotus fabrice de Teudele anno regni regis Edwardi tercii a conquestu septimo.

Idem respondet de cc xxxj blom' ferri de exitibus fabrice de Teudele hoc anno.

Summa—cc xxxj blom'.

De quibus in mercede operariorum pro dictis blom' faciendis xxxiij blom' capientium pro opere suo septimam blom'.

Summa—xxxiij blom' Et remanent c iiij[xx] xviij blom'.

In petris fodiendis ad cc xxxj blom' ferri xlj s. vj d. ob., pro centena xviij s. In cariagio eorundem usque ad furnum xj s. vj d., pro centena v s. In dictis petris combustis iiij s. vij d. ob., pro centena ij s. In mercede anteriorum flatorum de consuetudine facta xliij s. iij d. ob. q[a]., pro quolibet blom' ij d. q[a]. [In] vij decenis et dimidio carbonum emptis ad dictos blom' faciendos et petras ardendas preter xxxiiij decenas p . . . de bosco domine xxx s., pro decena iiij s. In cariagio dictarum xxxiiij decenarum carbonum de bosco domine usque ad fabricam xj s. iiij d., pro decena iiij d. In potagio operariorum ij s. j d. In reparacione diversorum utensilium dicte fabrice ij s. In uncto empto pro follibus unguendis iij d. In stipendio operariorum quod dicitur gersuma iiij s. Expensa.

Summa—vij l. x s. xj d. ob. q[a]. [*sic*.]

1333–4.

[P.R.O. Ministers' Accounts, Bundle 890, no. 26.]

Compotus Johannis de Mesinglegh camerarii domine Elizabethe de Bourg' domine de Clare del Southfrith a festo Sancti Michaelis anno rengni [*sic*] Regis Edwardi tercii a conquestu septimo usque idem festum anno revoluto.

Idem respondet de . . . .

Exitus fabrice de Teudele.

Et de xxiiij li. x s. de cc iiij^{xx} xiiij blom' venditis ut extra, precium blom' xx d. Et de vj s. viij d. de firma fabrice de Teudele a festo Pasche usque festum Sancti Michaelis pro dimidio anno hoc anno dimisse mense Marcii per dominum Thomam de Gedewerth.

Summa—xxiiij li. xvj s. viij d.

Vendicio petrarum.

Et de xx s. de petris ad cccc blom' venditis hoc anno, precium C. v s.

Summa xx s.

. . . . . .

Expensa pro blom'.

Inde idem computat in factura et expensis circa c et xij blom' faciendis apud fabricam de Teudele ante festum Pasche ut plenius continetur extra in tergo vj li. xiij s. ob.

. . . . . .

[*In dorso*]

Compotus fabrice de Teudele.

Idem respondet de c iiij^{xx} xviij blom' de remanentia in dicta fabrica super compotum anni precedentis Et de c et xij blom' factis ibidem hoc anno ante Pascham Et extunc predicta fabrica dimittitur ad firmam per dominum Thomam de Gedewerthe.

Summa—cccx blom'.

De quibus in mercede operariorum pro dictis blom' faciendis xvj blom' capientium pro opere suo septimam blom'. In vendicione ut infra cc iiij^{xx} xiiij blom'.

Et Nichil remanet.

Custus fabrice.

Idem computat in petris fodiendis ad c et xij blom' faciendas ut supra xxij s. vj d., pro C. xx s. In cariagio dictarum petrarum usque fabricam v s. vij d. ob., pro C. v s. In dictis petris comburendis ad supradictas blom' ij s. iij d., pro C. ij s. In consuetudine de Forblouweris pro dictis blom' xxj s., pro qualibet blom' ij d. q^{a}. In emendacione del tuer' viij d. In potagio operariorum xvj d. In xx duodenis carbonum ad dictas blom' cum cariagio usque fabricam lxxvj s. viij d., precium duodene iij s. x d. In stipendio supradictorum operariorum iij s. pro dimidio anno.

Summa—vj li. xiij s. ob. ut computatur infra.

1350–1.

[Exchequer Accounts Various, Bundle 485, no. 11.]

[m. 4.]

Compotus Thome Springet custodis fabrice de Teudele a xvj die Octobris [die lune proxima post festum Sancti Luce Ewanglie *struck through*] anno regni regis Edwardi tercii a conquestu xxiiij^{o} usque xxx diem Julii [diem Sabbati in provigilia ad vincule [*sic*] Sancti Petri *struck through*] anno supradicti Regis xxv^{o} per xlj septimanas [xxxviij septimanas *struck through*].

Vendicio ferri.

Idem respondet de iiij li. viij s. x d. [. . j s. x d. *struck through*] receptis de xxvj blomys venditis, precii blome iij s. v d. Et de viij li. xvj s. iij d. receptis de xlvij blomys venditis precii blome iij s. ix d. Et de xix li. viij s. vj d. [xviij li. xj s. *struck through*] receptis de v^{xx} xj blomys venditis, precii blome iij s. vj d. Et de vj d. receptis de graynes venditis.

Summa—xxxij li. xiiij s. j d. probatur.

Custus fabrice cum reparacione domus fabrice.

Idem computat in carpentria dicte fabrice per visum Thome Judde vj s. Item viij ^{c} clavis emptis ad eandem iiij s. Item in ij m^{l}. prig' emptis ad eandem ij s. ij d. Item in dawbyng dicte fabrice xviij d. Item in factura arrastrii dicte fabrice xvj d. Item in uno pari belleis emptis [*sic*] xij s. per visum Thome Judde. Item in uno securi empto pro ferro cyndendo xij d. Item in emendacione dicti securis cum acere iij d. Item in ij tuers ferry emptis ij s. viij d. Item in j hamer empto pro lapidibus frangendis j d. Item in j egyson empto j d. Item in ij crebris

emptis v d. Item in j scope empto j d. q^{a}. Item in j olla lutea empta pro aqua portanda j d. Item in j pare banostis empto xij d. Item in ij alveis emptis pro lapidibus portandis v d. Item in j plaustro manuali empto vij d. Item in j serura cum clave empta iij d. Item in uncto empto pro dictis belliis xv d. Item in albo correo et in iij pellibus leporum emptis pro dictis belliis iij d. Item in uno correo bovino novo empto pro coopertura dictarum belliis v s. Item in xxvj egyn faciendis pro tuers vj s. vj d., pro ege iij d. Item in factura dicte belliis vj d.

Summa—xlvij s. v d. q^{a}. probatur.

Idem computat solutos pro fodiacione lapidum pro dictis xij^{xx} et xij [vij *struck through*] blomys lxviij s. [lxvj s. ij d. ob. *struck through*], pro C. xxvij s. Idem computat solutos pro fodiacione lapidum pro clviij bloms quod remanet in stauro super annum sequentem xlj s., pro C. ut supra Item computat solutos dicto fodiatori lapidum ex convencione facta per Thomam Judde pro una tunica v s. Item in cariagio cc et dimidii lapidum et olwode xx s., pro C. viij s. Item in elyng' dictorum lapidum v s., pro C. ij s. Item in xvj duodenis carbonum emptis cvj s. viij d., precium duodene vj s. viij d. Item computat in xxiiij duodenis carbonum emptis ix li. xij s., precium duodenne [*sic*] viij s. de bosco domine empto cum Thoma Judde per visum Johannis Parker Item in cariagio dictarum xl duodenarum carbonum xxiij s. iiij d., pro duodena vij d. Item in blowyng' vij^{xx} xviij blomys iiij li. xviij s. ix d. ob. pro blome vij d. ob. Item in blowyng' iiij^{xx} xiiij [ix *struck through*] blomys lx s. viij d. ob. [lvij s. v d. ob. *struck through*]. pro blome vij d. ob. q^{a}. Item in potagio iiij blowers per xxxvj septimanas iij s., pro septimana j d. Item solutos pro gersuma maysterblower pro tribus quarteriis vj s., pro quarterio ij s. Item in gersuma secundi blower per idem tempus ij s. ix d., pro quarterio xj d. Item in gersuma tercii blowere per idem tempus ij s. iij d. [iiij d. *struck through*] Item in gersuma quarti blower ij s. per idem tempus, pro quarterio viij d. Custus ferry.

Summa—xxxj li. xvj s. vj d. probatur.

Idem computat in vadiis dicti custodis per tempus compoti ex convencione Roberti Marchal et Walteri Colpepyr xx s. Item pro roba dicti custodis x s. per annum ex dicta convencione. Vadia et stipendia.

Summa—xxx s. probatur

Summa omnium expensorum et liberacionum xxxv li. xiij s. xj d. q^{a}.

Et sic est dictus Thomas in excessu de lix s. x d. q^{a}.

Profectus hoc anno cum nova constructa domo et ferro remanente appreciato ut extra xj li. v s. vij d. Excessus.

[*In dorso*]

Idem respondet de xij^{xx} vij blomys ferri receptis de exitu fabrice De eodem exitu prout probatum est super compotum v blomes. Ferrum.

Summa xij^{xx} xij [et vij *struck through*]. probatur.

De quibus computat in vendicione ix^{xx} iiij [viij^{xx} et xix *struck through*] blomes ut infra.

Summa—ix^{xx} iiij [viij^{xx} et xix *struck through*] Et remanent lxviij blomys probatur.

Idem respondet de xl duodenis carbonum receptis de empcione ut patet per talliam contra Johannem Parker forestarium. Carbones.

Summa xl duodene probatur.

De quibus computat in factura dictarum xij^{xx} et xij [vij *struck through*] blomys xxxix duodenas et dimidium per visum dicti Johannis Parker.

Summa—xxxix duodene et dimidium Et remanet dimidium duodene.

Orston. Idem respondet de lapidibus vocatis orston receptis de fodiacione in foresta pro iiij^{c} et v blomys ut infra.

Summa—patet.

De quibus computat in factura xij^{xx} xij [vij *struck through*] blomys ferri ut supra Et remanent lapides vocati orston pro clviij blomys in stauro super compotum anni futuri ut infra.

[*Endorsed*]

. . . Springet custodis fabrice de Teudele anno xxv^{to}.

1352.

[Ibid.]

[*m.* 3.] Compotus Thome Springet custodis fabrice de Teudele a xiiij^{to} die Januarii anno regni regis Edwardi tercii post conquestum xxv^{to} usque ultimum diem Julii tempore tunc proxime sequente anno xxvj^{to} per xxviij septimanas et ij dies.

Arreragia. Idem respondet de xiij li. iij s. ij d. q^{a} de arreragiis ultimi compoti sui.

Summa—xiij li. iij s. ij d. q^{a}. probatur.

Vendicio ferri. De liij blomes ferri de exitu fabrice domine venditis per tempus compoti viij li. iij s. v d., precium blom' iij s. j d. De xxiiij blomis venditis lxxvj s., precium blom' iij s. ij d. De xxvj blomis ferri de exitu dicte fabrice venditis, precium blome iij s. iiij d., iiij li. vj s. viij d. De xxvij blomis venditis iiij li. x s., precium blom' iij s. iiij d. De xiij blomis ferri venditis, precium blom' ut supra xlij s. iiij d. De greyn' ferri venditis iij d.

Summa—xxij li. xix s. viij d. probatur.

Summa tocius recepte cum arreragiis—xxxvj li. ij s. x d. q^{a}. probatur.

Custus fabrice. In ix tuers ferri faciendis ij s. iij d. In securi fabrice superponenda cum ascere pro ferro scindendo vj d. In uncto empto pro belyes unguendis vj d. In corio empto pro dictis beliis j d. ob. In emendacione unius crebri fabrice j d.

Summa—iij s. v d. ob. probatur.

Custus ferri cum stipendio fabrorum et custodis. In xxij duodenis xj summagiis carbonum emptis in chacea domine ix li. ij s. iij d., precium duodene viij s. In fodiacione petrarum pro iiij^{xx} vij blomes ferri faciendis xxj s. ix d. In dictis petris cariandis vj s. viij d. pro centena viij s. In elyngg' cxliij blomes ij s. ix d. In xxij duodenis xj summagiis carbonum cariandis ad fabricam xiij s. iij d. q^{a}, pro duodena vij d. In blowyngg' dictis cxliij bomis [*sic*] ferri iiij li. xij s. iiij d. q^{a}, pro quolibet blom' vij d. ob. q^{a}. In potagio iiij blowers per xxj septimanas xxj d. capientium inter se per septimanam j d. secundum consuetudinem patrie. In gersuma magistri blower per unum quarterium anni ij s. In gersuma secundi blower per dimidium annum ij s. In gersuma tercii blower per idem ij s. In gersuma quarti blower per idem xvj d. In stipendio Thome Springet custodis fabrice domine per tempus compoti xv s. In j roba empta pro dicto custode per annum x s. ex convencione facta per R. Mareschal et W. Culpeper.

Summa—xvij li. xiij s. j d. ob. probatur.

Liberacio denariorum. Liberata Thome Judde camerario de Southfrith xiij li. iij s. ij d. q^{a}.

Summa—xiij li. iij s. ij d. q^{a}. probatur.

Summa omnium expensorum et liberacionum—xxx li. xix s. ix d. q^{a}.

Et debet dictus Thomas Springet ciij s. j d.

Memorandum quod Thomas Springet liberavit de arreragiis supradictis in anno futuro domino W. Mant per unam talliam lx s. Et xliij s. j d. assignati fuerunt ad liberandos Johanni Parker camerario de Southfrith in dicto anno futuro.

Profectus fabrice hoc anno vj li. viij s. iij d. q^{a}. ut patet per compotum istum et proximum compotum precedentem.

[*In dorso*]

De exitu fabrice per tempus compoti cxliij blomes ferri. Ferrum.

Summa—cxliij probatur.

De quibus computat in vendicione ut infra. Et equat. probatur.

De empcione pro ferro faciendo in foresta domine xxij duodene xj summagia carbonum. Carbones.

Summa—xxij duodene xj summagia. probatur.

De quibus in expensis cxliij blomes faciendarum xx duodene et xj summagia.

Summa—xx duodene et xj summagia.

Et remanent ij duodene carbonum. probatur.

De remanentia orston pro lxviij blomes faciendis. De fodiacione lapidum de orston pro iiij^{xx} vij blomes faciendis. Orston.

Summa—orston pro clv blomes. probatur.

De quibus in expensis pro cxliij blomes superius factis.

Et remanet orston pro xij blomes ferri faciendis. probatur.

1353.

[Ibid.] [*m.* 1.]

Compotus Johannis Parker custodis fabrice ibidem per vij septimanas mensium Septembris Octobris et Novembris anno xxvij^{mo}. Teudelee.

Idem oneratur de ciij s. j d. de arreragiis Thome Springet nuper custodis fabrice ibidem. Arreragia.

Summa—ciij s. j d. probatur.

De xxvj blomes ferri venditis de exitu dicte fabrice per tempus compoti iiij li. ij s. x d., precium blome iij s. ij d. De xiij blomes ferri postea venditis per J. Parker xlj s. ij d., precium blome ut supra. Vendicio ferri.

Summa—vj li. iiij s. probatur.

Summa tocius recepte cum arreragiis—xj li. vij s. j d. probatur.

In fodicione petrarum de oreston pro xxxiij blomes ferri faciendis viij s. xj d. q^{a}., videlicet pro qualibet blom' iij d. q^{a}. Fodicio de Oreston.

Summa—viij s. xj d. q^{a}. probatur.

In v duodenis viij summagiis carbonum emptis pro opere fabrice xliiij s. vij d. ob. q^{a}., videlicet precium duodene viij s. Empcio carbonum.

Summa—xliiij s. vij d. ob. q^{a}. probatur.

In blowyng' xxvj blomis ferri ante festum Sancti Michaelis xx s. vij d., videlicet pro qualibet blom' ix d. ob. In j astrio de novo faciendo pro dicta fabrica ix d. ob. In ij tuers perforandis et [al' *struck through*] emendandis x d. Item in blowyng' xiij blom' ferri post festum Sancti Michaelis viij s. j d. ob., videlicet pro qualibet blom' vij d. ob. In cariagio de oreston et olewod pro xxxiij blom' [in cariagio xxxix blom' *struck through* [1]] ferri faciendis iij s. In cariagio v duodenarum et viij summagiorum carbonum usque dictam fabricam vj s. j d. In elyngg' xxxix [xxxiij *struck through*] blom' ferri ix d. In potagio iiij blowers per vij septimanas vij d. Custus ferri cum stipendiis fabrorum.

[1] xxxix has been altered to xxxiij, and the whole afterwards struck through.

[*In margin*: remanent ij paria de belies.] In gersuma dictorum blowers pro xxxix [xxvj *struck through*] blom' ferri xviij d. In j pari de belies de novo empto de Henrico Jon ix s. In uncto empto pro belies unguendis iij d.

Summa—lj s. vj d. probatur.

Liberacio denariorum. Respondet. Liberata sibi ipsi Receptori de Southfrith de arreragiis Thome Springet nuper custodis fabrice ibidem } ciij s. j d.

Summa ciij s. j d. probatur.

Respondet. Summa omnium expensorum et liberacionum—x li. viij s. ij d. Et debet dictus Johannes Parker xviij s. xj d. quos liberat sibi ipsi Receptori de Southfrith unde respondet in pede compoti sui ibidem. Et sic dictus Johannes quietus est hic.

[*In dorso*]

Ferrum. De exitu fabrice per tempus hujus compoti xxvj blomes ferri. Item de exitu dicte fabrice post festum Sancti Michaelis xiij blom' ferri.

Summa—xxxix [xxvj blomes ferri *struck through*] blomes ferri.

Et venditur ut infra. Et equat. probatur.

Carbones. De remanentia ij duodene carbonum.
De empcione pro ferro faciendo in foresta domine v duodene et viij summagia carbonum.

Summa vij duodene et viij summagia. probatur.

De quibus in expensis xxxix [xxvj *struck through*] blom' ferri faciendarum per tempus hujus compoti vj duodene et xiij summagia [iiij duodene dimidium *struck through*].

Summa vj duodene et xiij summagia. Et remanent ix [1] [et j summagium *struck through*] summagia carbonum pro anno futuro. probatur.

Orston. De remanentia orston pro xij blomes ferri inde faciendis [De empcione *struck through*] De fodicione lapidum de orston in foresta domine per dictum tempus pro xxxiij [lij *struck through*] blomes ferri faciendis.

Summa orstoni pro xlv blomes. probatur.

De quibus in expensis pro xxxix blom' ferri superius faciendis xxxix blom' de orston.

Summa xxxix. Et remanet orston pro vj blom' ferri inde faciendis. probatur.

Mortuum staurum. Remanent in dicta fabrica ij paria belies.

[*Endorsed.*]

Teudelee. Compotus J. Parker custodis fabrice ibidem anno xxvij°.

1354.

[*m.* 2.] [Ibid.]

Teudelee. Compotus Thome Springet custodis fabrice ibidem per xxv septimanas [hoc *struck through*] anno regni regis Edwardi tercii post conquestum xxviij°.

Arreragia. De arreragiis nichil quia quietus in ultimo compoto.

Summa—nulla.

Vendicio ferri et aliorum. De lxxiiij blomes ferri de exitu fabrice venditis xij li. xix s., precium blom' iij s. vj d. De iij aliis blom' ferri de exitu dicte fabrice venditis x s., precium blome iij s. iiij d. De lxj blomis ferri de exitu dicte fabrice venditis x li. iij s. iiij d., precium blom' iij s. iiij d. De corio unius veteris paris bel' vendito vj d.

Summa tocius recepte—xxiij li. xij s. x d. probatur.

[1] Written over an erasure.

In fodicione petrarum de orston pro vj^{xx} ij blom' ferri inde faciendis xxxij s. x d. ob. [xxxiij s. *struck through*] videlicet pro qualibet blom' iij d. q^{a}. [minus in toto j d. ob. *struck through*] In fodicione petrarum de orston pro xvj blom' ferri inde faciendis iiij s. iiij d. pro blom'ut supra — Fodicio de orston.

Summa—xxxvij s. ij d. ob. probatur.

In xiiij duodenis dimidio et v summagiis carbonum emptis in foresta domine cxviij s. x d. [cxix s. iij d. *struck through*], precium duodene viij s. In viij duodenis dimidio carbonum emptis in patria lxviij s., precium duodene ut supra De ij duodenis et v summagiis carbonum emptis in patria ad diversa precia xvij s. iij d. — Empcio carbonum.

Summa—x li. iiij s. j d. probatur.

In blowyng' vj^{xx} xviij blom' ferri per tempus hujus compoti ciij s. vj d. pro qualibet blom' ix d. In iiij tuers emendandis per idem tempus xij d. [xiij d. *struck through*] In j augisen' emendando ij d. In j pari de tonges vocatis loves ferri empto ij s. vj d. In j pari coddes empto xij d. In belies de corio emptis xij d. In clavis ad idem emptis viij d. In dictis belies faciendis vj d. [viij d. *struck through*] In uncto pro dictis bel' empto iij d. In cariagio de orston et olwode pro vj^{xx} xviij blom' ferri faciendis x s. vj d. In cariagio viij duodenarum dimidii carbonum de empcione in patria usque fabricam ix s. xj d. videlicet pro cariagio cujuslibet duodene xiiij d. In xiiij duodenis dimidio et v summagiis carbonum de empcione in foresta cariandis usque fabricam viij s. viij d. videlicet pro quolibet [*sic*] duodena vij d. In elyng' vj^{xx} viij blom' ferri ij s. viij d., pro centena ij s. In j corio albo pro bel' inde faciendis empto iij s. vj d. In brakyng ejusdem vj d. In j pari de codd' empto xij d. In j crebro empto ij d. ob. [iij d. *struck through*] In emendacione iiij toyeres xij d. In emendacione unius securis per vices ij d. [iiij d. *struck through*] In potagio iiij blowers per xxv septimanas ij s. j d. In gersuma Johannis Tubbe magistri blowere pro iij quarteriis anni viij s. [vj d. *struck through*] In in [*sic*] gersuma secundi blowere per dimidium anni iiij s. Item in gersuma tercii blowere pro iij quarteriis anni [vj s. *struck through*] v s. [vj d. *struck through*] In gersuma quarti blowere per idem iiij s. [vj d. *interlineated and struck through*] In j trey pro lapidibus importandis j d. ob. Item in ij duodenis et v summagiis carbonum [cariandis *struck through*] de empcione in patria cariandis usque ad fabricam xxij d. ob. — Custus ferri cum stipendiis fabrorum. [*In margin:* Et non plus de gersuma fabrorum quia Johannes Parker solvit inde xviij d. ut patet per compotum suum hoc anno.]

Summa—viij li. xiij s. ix d. ob. probatur.

In stipendio Thome Sprynget custodis dicte fabrice per tempus compoti unacum proparte robe sue per idem xv s. — Stipendium.

Summa—xv s. probatur.

Summa omnium expensorum—xxj li. x s. j d. Et debet dictus Thomas xlij s. ix d. quos liberavit Johanni Parker receptori de Southfrith unde respondet in compoto suo ibidem. Et sic dictus Thomas quietus est hic. — Respondet.

Profectus fabrice per tempus compoti liij s. viij d.

[*In dorso*]

De exitu fabrice per tempus compoti vj^{xx} xviij blom'. — Ferrum.

Summa vj^{xx} xviij blom'. Et vendite ut infra. Et equat. probatur.

De remanentia ix summagia. De empcione in foresta domine per tempus hujus compot xiiij duodene dimidium et v summagia. De empcione in patria viij duodene dimidium ante visum compoti. Item de empcione post visum compoti ij duodene et v summagia. — Carbones.

Summa—xxvj duodene et v summagia. probatur.

De quibus in expensis vj^{xx} xviij blom' ferri faciendarum per tempus compoti xxiiij duodene et v summagia.

Summa—xxiiij duodene et v summagia. Et remanent ij duodene carbonum. probatur.

Que remanentia liberatur Ricardo Colpeper in parte convencionis l duodenarum per annum.

Orston. Et remanet orston pro vj blomes ferri inde faciendis. De fodicione lapidum de orston in foresta domine per tempus hujus compoti pro vj^{xx} xviij blom' inde faciendis.

Summa—vij^{xx} iiij blom' ferri. probatur.

De quibus in expensis pro vj^{xx} xviij blom' ferri superius factis vj^{xx} xviij blom' de orston.

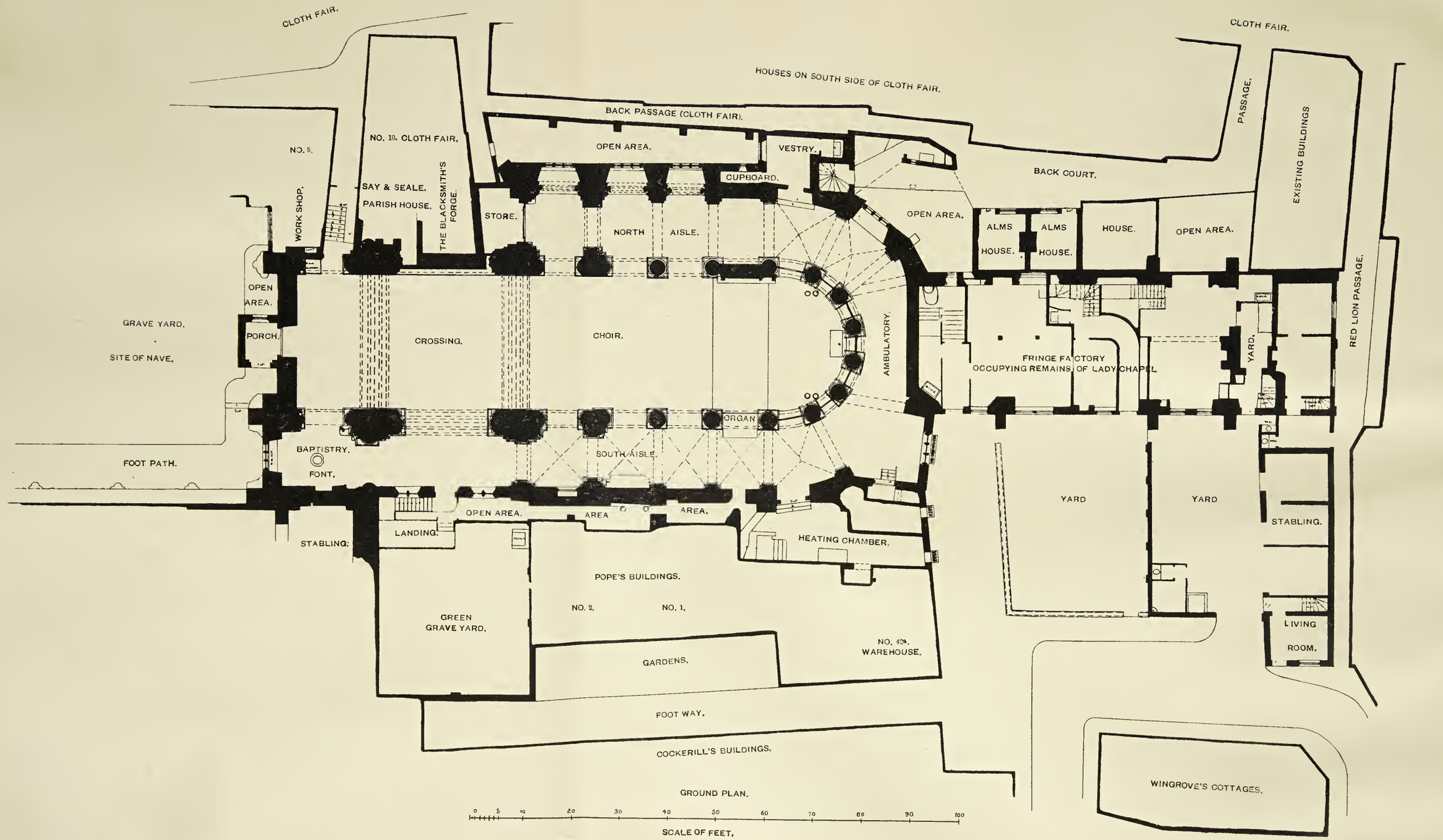
Summa—vj^{xx} xviij blom'. Et remanet orston pro vj blom' ferri inde faciendis. probatur.

Que remanentia liberatur Ricardo Colpeper in parte convencionis iij^{c} de oreston per annum.

Mortuum staurum. Remanent in fabrica ij paria belies j securis pro ferro scindendo j aundire j par toyers j hamer pro lapidibus frangendis j cribrum j scope j olla lutea pro aqua portanda j par lanost' [*sic*] ij alvei pro lapidibus portandis j ciner manualis j serura cum clave.

[*Endorsed.*]

Teudele. Compotus Thome Sprynget custodis ibidem anno xxviij^{o}.



GROUND PLAN AS EXISTING SEPTEMBER 1885. ST. BARTHOLOMEW THE GREAT, SMITHFIELD

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III.—*The Plan of St. Bartholomew's, West Smithfield, and the recent excavations. By* E. A. Webb, *Esq., F.S.A.*

Read 13th February, 1913.

Recent excavations made within the church of St. Bartholomew the Great, exposing the sites of the first Lady chapel and of the south side chapel, have thrown new light on the plan of Rahere's church; and excavations on the south side of the church have uncovered the foundations of the sacristy, chapter-house, and the Prior's house. The object of this paper is to lay the results of these excavations before the Society.

The earliest plan of St. Bartholomew's now known to exist is that made by Thos. Hardwick, a Fellow of the Society, and architect to the church, in the year 1791. His drawings are the property of the Society. They are helpful in many ways, because a great length of the south wall of the nave, the whole of the south-east chapel, the chapter-house, the dorter, and the whole of the east and part of the south walks of the cloister were then standing. But both in the plan and in the sections some portions were left, unfortunately, to the imagination. Wilkinson's plan, published in *Londina Illustrata* in the year 1821, is an adaptation of Hardwick's. Hayter Lewis, a Fellow of the Society, and William Slater carefully measured the church before the restoration of 1864. Copies of some of these plans were made by Messrs. Perry and Reed in 1881, and were kindly presented to the church authorities a few years ago by Mr. F. H. Reed. The church was again accurately measured in the year 1886 by Sir Aston Webb, before his work of restoration, and copies of his plan, elevations, and sections were presented by him to the Society (plates I and II). Sir Aston has now had the church again carefully measured for the history of the church, which I hope some day to publish. When this last plan was being made it was thought desirable to ascertain, if possible, the plan of Rahere's original building by excavating beneath the floor of the Lady chapel, and on the sites of the north and south radiating chapels. The results of these excavations were of sufficient importance to justify the Restoration Committee in paying a large proportion of the cost of the work. The architect's work on the plans was carried out by Mr. F. Renton Barry.

Rahere founded his church in the month of March, 1123. He planned it

on a grand scale to extend into Smithfield. The external length, as planned, was 310 ft., increased in the fourteenth century to 349 ft. by the extension of the Lady chapel. The width was 66 ft., and the width across the transepts, so far as we can tell, was 149 ft. It was, therefore, in the fourteenth century of greater length than the cathedrals of Chester (345 ft.), Bristol (325 ft.), or Rochester (320 ft.).

The eastern limb had an apsidal termination, with a vaulted ambulatory, from which opened three radiating external chapels, as at Norwich and elsewhere; but with this peculiarity, that there were two bays between these chapels instead of one, which was the usual arrangement. So far as I have been able to ascertain, St. Bartholomew's was the last of the greater twelfth-century churches to be built on this plan,[1] and the only church of the Augustinian canons that was ever so built.

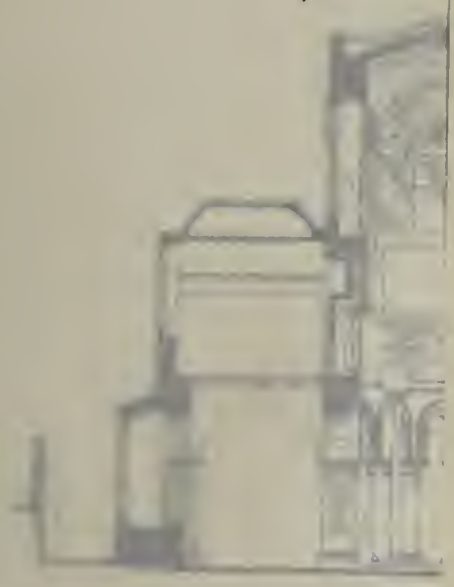
The apse was divided into seven bays, as at St. Augustine's, Canterbury. No other instance of this arrangement in the twelfth century, so far as I know, is to be found in this country. The quire consists of four bays, as at Norwich and Peterborough. There are compound piers between the third and fourth bays westward, which may indicate, as suggested by Mr. St. John Hope, an alteration of the original plan from three to four bays; or these piers may have been planned to give greater strength to the abutment of the central tower. The ritual quire extended westward beyond the crossing. It occupied one bay of the nave, and was conterminous with the parish church as we see it to-day; but it is probable that Rahere did not complete more than the three easternmost bays of the eastern arm of the church. This is suggested by the set-back in the face of the engaged columns on the south side. This set-back of three inches seems to me to have been caused by the building of a temporary wall at that point; and when Rahere's successor, Prior Thomas, built on the west side of that wall, the work was not accurately set out, and the ends did not meet truly.

The bay of the nave was occupied by the pulpitum, but this was not until the thirteenth century. The present west wall of the church is probably built upon, or occupies the site of, the west wall of the pulpitum, a view which is supported by a pen-and-ink elevation of the lower part of the west wall, made in 1864, in which a bricked-up opening in the centre indicates the arched opening leading through the pulpitum to the quire (pl. III, fig. 2).

The church was planned for a central tower, which is shown as still standing in Wyngaerde's map of about the year 1550.

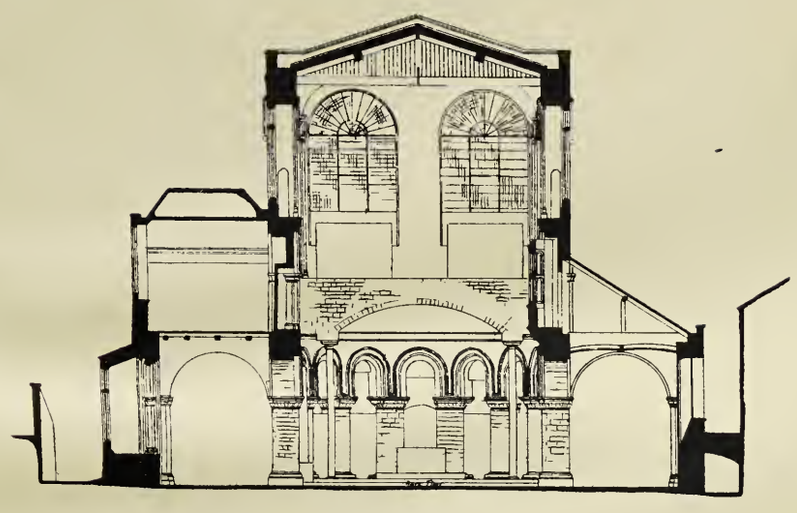
The nave, which had north and south aisles, consisted of ten bays, as has been proved by excavation. Some of the bases of the vaulting shafts remain

[1] Mr. Harold Brakspear has since proved that Malmesbury was built on the ambulatory plan about the year 1142.

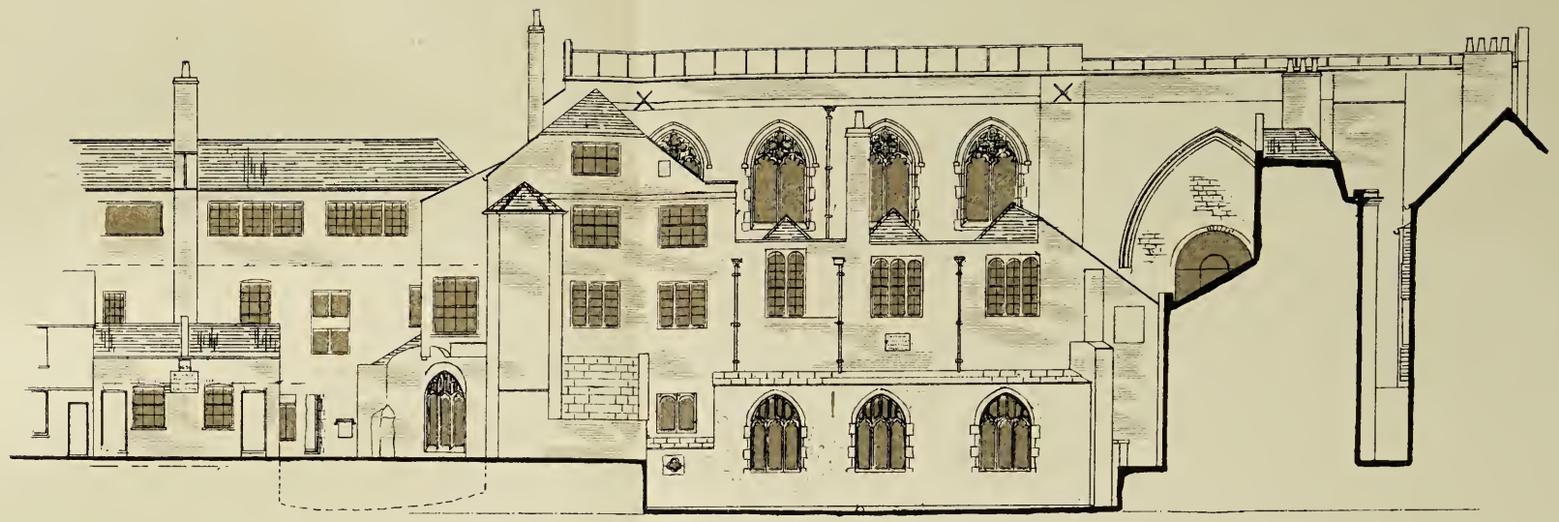


TRANSVERSE

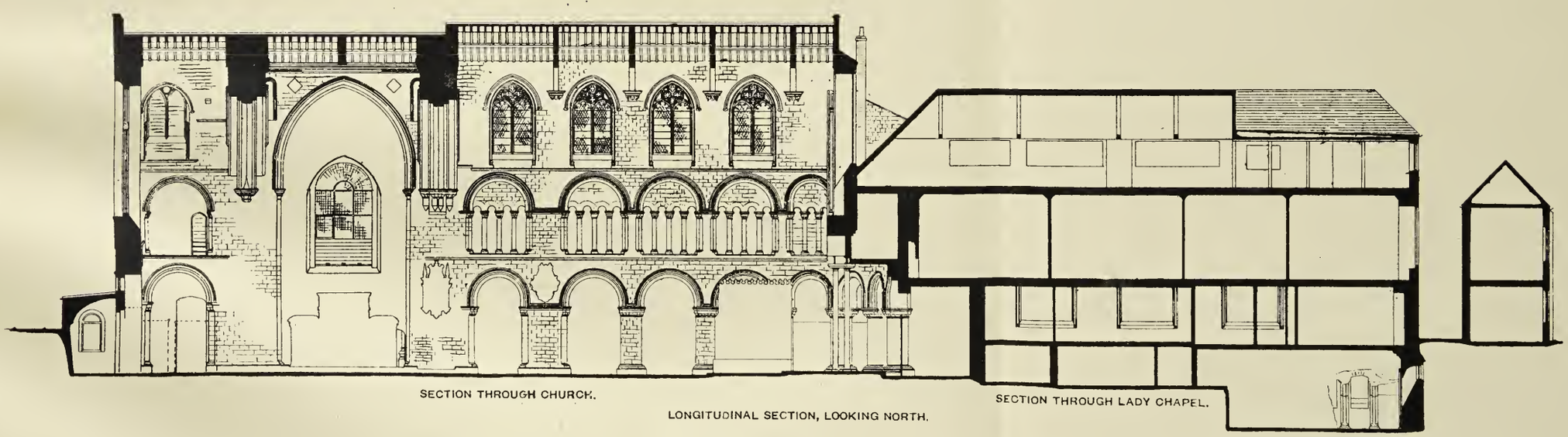




TRANSVERSE SECTION, LOOKING EAST.



NORTH ELEVATION.



Aston Webb
12 Bedford Square W.C.

ELEVATIONS AND SECTIONS AS EXISTING SEPTEMBER 1885. ST. BARTHOLOMEW THE GREAT, SMITHFIELD.

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against a large fragment of the south wall of the south aisle. It is to be noted that the fourth bay from the east measures 17 ft., whilst the others only measure 15 ft. 6 in. I have no explanation to offer for this.

It is fair to assume that the church presented a bold façade with three portals to Smithfield, though all that is now left is the one at the end of the south aisle, with a portion of the wall to the south, on which is a fragment of a wall arcade like that on the north-west front of Dunstable Priory church.

The plan would probably have provided for two flanking towers. I laid before the Society in 1905 such documentary evidence as exists to support the assumption that at any rate there was such a tower at the south-west corner.[1]

The transepts were aisleless, and projected north and south from the crossing, the length of the south transept being 40 ft. from the quire aisle wall. An old print shows on its east side an arch opening to what was probably an apsidal chapel (pl. III, fig. 1). It is not an unfair assumption that Rahere planned such an eastern chapel in both transepts, that in the south transept being pulled down in the fourteenth century to build the sacristy; and that in the north transept being demolished by Roger Walden that he might extend it eastward to form the All Saints or parish chapel.

The ambulatory of the quire, which gave access to the three radiating chapels, is 12 ft. 6 in. in width on the south side, and 12 ft. on the north side.

The spacing of the four bays of the quire diminishes with each bay eastward from 14 ft. 8 in. to 11 ft. 4 in. The first bay of the apse is opposite to one of the side chapels, and is wider than the rest, which I understand to be the usual arrangement. It measures 10 ft. from centre to centre, whilst the others measure 7 ft. 6 in. only. The transverse arches of the ambulatory vault radiate from a point at the centre of the chord of the apse.

Mr. Barry's measurements show that the width of the quire between the circular columns at the chord of the apse is 28 ft. 5 in. in the clear. This measurement diminishes towards the west equally on both sides of the church to 27 ft. 7 in. in the clear at the last pair of the circular columns. At the first compound pier, measured eastward of the break, it is 27 ft. 6 in. From this point westwards the walls are exactly parallel. Mr. Barry points out to me that the entire church, including the apse and ambulatory, has been set out with such remarkable precision, that this taper in the line of the columns can hardly have been accidental. Indeed, that it was done deliberately is further suggested by the fact that, but for this taper, the bulge inwards of the wall above need not have occurred. The cause of the bulge is that the circular columns, being brought inwards, are in line, not with the axis of the compound piers, which are 6 in. more in diameter than the columns, but with their inner face. The

[1] *Archaeologia*, lix. 375.

consequence is that the wall above, which overhangs the circular columns, is 3 in. further inwards than the inner face of the wall of the compound piers, and inasmuch as there is of course no spreading capital on the face of the compound piers, as in the case of the circular columns, the overhanging wall has to get back 3 in. to the face of the compound pier. This arrangement therefore considerably accentuates the narrowing of the quire at this last column, and suggests a deliberate intention.

The arches of the aisle vault, springing from the columns of the quire, are carried by a pilaster on the outer wall, and, so far as they still remain, are accurately set out from the radiating point on the chord of the apse. The width of the bays on the outer wall, from centre to centre of the pilasters, varies from 15 ft. 6 in. in the first bay to 12 ft. 9 in. in the others. The eastern or Lady chapel opened from the central bay, the entrance probably being the whole width between the pilasters, i.e. 9 ft. 6 in. The side chapels, both on the north and on the south sides, opened from the first bay westward, but with an entrance measuring only 6 ft. 6 in. and not the full width between the pilasters of 9 ft. 6 in. This left, as already mentioned, two bays between the side chapels and the Lady chapel. The chapel on the north side was St. Bartholomew's chapel, where the cases of faith-healing recorded in the Book of the Foundation probably took place; that on the south, there is reason to believe, was St. Stephen's chapel.

Rahere's eastern chapel was demolished about the year 1335, and a new Lady chapel was built. It was extended eastward to an external length of 64 ft. 6 in., with a charnel-house under the eastern end, 24 ft. 6 in. in length. As the width of the chapel was increased to 23 ft. 3 in., the pilasters which carried the transverse arches of the vault of the centre bay had to be removed. The vault itself, therefore, of the three centre bays must have been taken down and new arches of the vault built, as we see them now, spanning the ambulatory from the walls of the new Lady chapel to the piers of the apse. A new vault was probably built for the three centre bays, with arches carried by shafts, or by a stone screen, at the entrance to the Lady chapel, thus continuing the triforium passage above.

This fourteenth-century vault, if built, must have been taken down in the early fifteenth century, when the apsidal end of the east limb of the church was changed to a square termination. For the two centre columns of the apse, which would have carried the arches of the new vault, were taken down, and a straight wall built, surmounted by two large east windows. Eastward of this, as shown in Lewis and Slater's plan, was built another wall enclosing a space, probably for a feretory, as at Winchester; and over the feretory a passage connecting the triforia, similar to the whispering gallery at Gloucester.

After the suppression, probably in the eighteenth century, these two east windows fell into decay, and were replaced by two round-headed ones in common



Fig. 1. The South Transept in 1802: from Malcolm's *London*

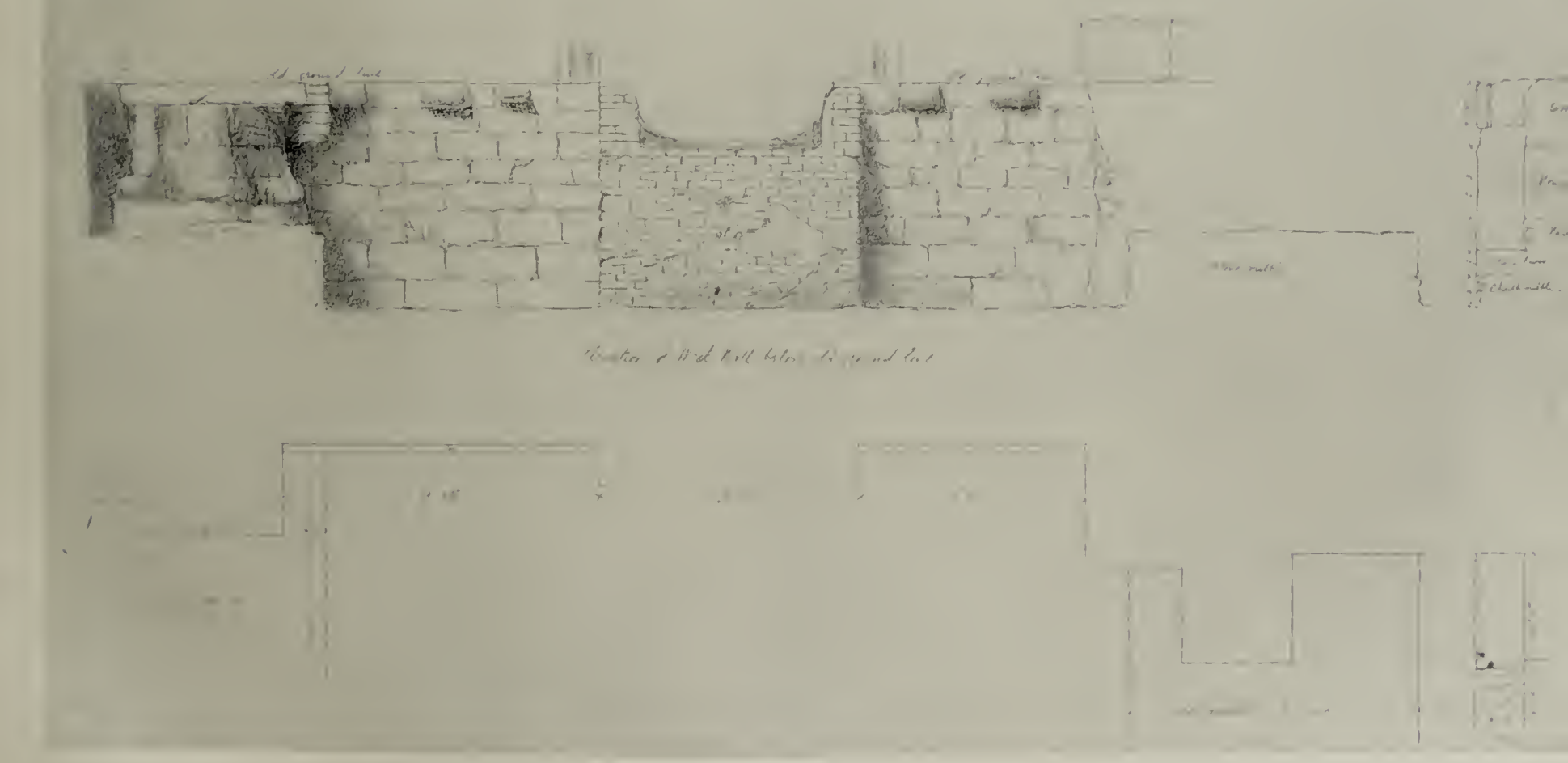


Fig. 2. Remains of the Pulpitum Wall as discovered in 1865
From a drawing belonging to the Rector and Churchwardens

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brick of the Georgian period. In the year 1864, all signs of worked stone in this east wall having disappeared, Hayter Lewis decided to restore the apsidal, instead of the square end, and the present two centre columns of the ground arcade were rebuilt by him.

I must now turn to the recent excavations in the Lady chapel.

After the suppression of the monastery the Lady chapel was converted at first into a dwelling-house, then into a letter foundry, and in 1833 into a fringe factory. For one or other of these purposes the floor was raised to the street level, and the floor of the chapel removed. A cellar was then formed on the south side below the floor, and below the level of the foundations of Rahere's chapel, as is well shown in the sectional drawing of 1886. When the Lady chapel was restored in the year 1897, and the domestic floor removed, there was then exposed at the west end of the north wall a mass of rough masonry. The nature of this was not clear at the time, but it was left as found, as all other finds have been during the last twenty-six years of the restoration. In December, 1911, to discover whether this masonry might have formed part of the base of the outer wall of Rahere's work, an excavation was made at its southern end. This exposed the base of a twelfth-century wall, which, after a gap of 3 ft. 6 in., ran in an easterly direction. This indicated that we had struck the north-west angle of Rahere's chapel.

This wall was followed eastward for 9 ft. 6 in., where there was an indication of the foundations turning south with a curve, suggesting an apsidal end to the chapel. This returned portion was soon abruptly terminated by the cellar just mentioned. For the same reason no foundations of a south wall were found. Sir Aston Webb, Mr. Bilson, and Mr. Peers, after careful inspection of the excavations and of the measurements, concur in the opinion that this rough block of masonry is quite reconcilable with the theory that it formed the outer wall of Rahere's apse, and that the straight wall found is not inconsistent with an apsidal end to a rectangular bay of the chapel. This straight wall is 3 ft. south of the present north wall of the Lady chapel, which gives us a width of 12 ft. 6 in. for Rahere's chapel; and this is about what we should expect from the width of the bay. The length, exclusive of any apsidal extension, was probably 13 ft. We shall never know whether the east end of the chapel was square or not, but the indications favour an apsidal end.

Attention was next directed to the south radiating chapel, which is shown on Hardwick's plan of 1791 with a straight and thin east wall, but with a thick apsidal south wall. The chapel was demolished in the year 1849 to build an infants' and girls' school, and in 1866 the boiler and furnace of the church were placed in the basement below, thereby exposing the foundations. When making the present plan it was noticed that the foundations of the east wall were curved,

and not straight as shown in Hardwick's plan, and Mr. Maurice Webb pointed out that the curve was not concentric with that of the south wall. Further excavations were therefore begun in November, 1911, which confirmed these observations, though the actual junction point of the two apses had been destroyed. We have here, then, a plan resembling that of Norwich, a cathedral which has much in common with St. Bartholomew's. A possible explanation of why Hardwick showed a straight east wall may be that Prior Bolton pulled down the eastern apse when he built the prior's house against it. We have a record that this south chapel was vaulted, and we assume that the apses were covered by semi-domes. The lower part of the west wall remains, but it is somewhat remarkable that it does not correspond in position with the wall pier inside the church, but abuts on the wall between the piers. It is now proposed to remove the boiler to the outside of the church, and also to remove the school building. When this is done the plan of these double apses will be still further revealed.

Excavations were next made on the site of the north side chapel, but only a few fourteenth-century foundations were discovered, on which the present stair-turret rests. The whole of the north side of the quire of the monastic church, outside the church walls, seems to have been remodelled about 1396, when Roger Walden built his parish chapel, for St. Bartholomew's chapel is referred to in a will of 1397[1] as having been 'newly founded'; and between it and the east end of Walden's chapel a St. Anne's chapel is referred to in a will of 1504. I consider that it is not unreasonable to assume that originally the north side chapel was similar in plan to that on the south side.

A trench was next opened westward from the site of the north chapel, through the length of the present area (at one time the site of the parish chapel), in hopes of finding some transverse walls indicating the extent of the parish chapel, or of the St. Anne's chapel, but the results were entirely negative.

As regards the outer wall of the two bays between the side chapels and the Lady chapel, on the south side Prior Bolton (1505–32) took down a bay and a half, and built out a rectangular end to the south aisle. In the south wall he formed a doorway, opening into the prior's house which he had built, and placed his rebus in the spandrils of the arch. The east wall is not built at right angles with the walls of the Lady chapel, nor in line with the east wall of the prior's house, but it faces nearly due east, while the church itself faces nearly 22 degrees north of east. If the building above formed the prior's chapel, as I believe, this deviation may have been due to a desire to give a truer orientation to the chapel. The demolition of this outer wall at the east end of the aisle necessarily involved the bay and a half of the ambulatory

[1] Wills, P. C. C., 401[b] Courtenay.



Fig. 1. Entrance Doorway to Chapter House



Fig. 2. Arch in outer wall at east end of north aisle

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left in the year 1335, and also one arch of the vault; but the northern arch, built at that time, was retained, and, of necessity, that small portion of the twelfth-century outer wall which formed part of its support, and which had been left at the rebuilding of the Lady chapel. Upon the north side of this fragment of the wall was built the respond of the new arch of the vault, but the new work was not properly bonded into the old, and has in consequence come away in places, disclosing the curved face of the twelfth-century apse, the masonry of which shows characteristic twelfth-century tooling. Last December twelvemonth I noticed that the stones of this curved face formed a reveal on their south side, on which is also the Norman tooling. Here we have, therefore, an original quoin of the twelfth century evidently *in situ*, the reason for which others than myself have found it very difficult to explain. Having made this discovery, I then examined the corresponding portion of the outer wall at the east end of the north aisle. It is thickly covered with plaster, and in part by the Roycroft monument, placed there in 1864. But at identically the same distance from the entrance to the Lady chapel as the quoin just described is a straight joint in the masonry, indicating a corresponding quoin on this side. As the outer wall on this side has not been interfered with in the same way as that on the south side, the pilaster still remains which carries the arch of the ambulatory vault. The wall between this pilaster and the straight joint measures 3 ft. 6 in., and consists of rough filling-in. The removal of a small portion of the latter disclosed a passage with an ashlar face passing to the open air. On the outside of the wall, in the corresponding position, is an arched opening, exposed in 1864, the meaning of which has never been made clear (pl. IV, fig. 2). The height from the church floor to the crown of the arch is 9 ft. 2 in. There is an outer brick arch, the height of which is higher, viz. 11 ft. 1 in., which indicates, as Mr. St. John Hope suggests, the beginning of a stair. The sides of this arched passage, or deep doorway in the wall, appear to have been refaced early in the fifteenth century.

It is therefore evident that in the twelfth century there was a doorway in the outer wall of the bay next to the Lady chapel on both sides, but what purpose it served is not at all clear.

Seeing that the seal of the priory used by Rahere shows a twelfth-century church with a chapel at the east end, and a turret rising in the angle formed by the junction of the two, I had hoped that these doorways might have proved to have been entrances to turret stairs; but I am told that there is not sufficient evidence, for the distance from what would have been the site of twelfth-century turrets in the angle is too great. The question must still be considered to be an open one.

Excavations were made outside in the area at the entrance to this mural

passage. At the church floor level, which was 2 ft. below the area floor, we met with walls apparently of the fourteenth or early fifteenth century, 1 ft. 3 in. thick, ashlar on the inside, but rough stone on the outside, enclosing a space measuring 6 ft. in its longest portion, and 4 ft. 1 in. in width, as shown on the plan. There was evidently a small building here, dating either from the rebuilding of the Lady chapel or from the rebuilding of the parish chapel, which was entered from the church by this doorway in the wall. It would therefore appear, whatever may have been the use of these doorways in the twelfth century, that when Rahere's eastern chapel was enlarged (or at some later period) the one on the north side was repaired, and served as an entrance to a small rectangular building. This may have been for a chantry priest or an anchorite, or for some such purpose. On the other hand, there may have been a small turret in the fourteenth century into which the small unglazed window at the west end of the north wall of the Lady chapel would have opened. This window is 3 ft. high, 2 ft. 1 in. wide, with a wooden lintel, and is 8 ft. 9 in. from the present floor level, which would mean about 6 ft. 6 in. from the then floor level.

Before leaving the subject mention must be made of an excavation beneath the floor of the church, which was taken up at the east end of the south aisle, made in hopes of finding the foundations of the outer wall, with its pilaster, pulled down by Prior Bolton, but all remains had been dug out to make room for interments, the lids of the coffins being only a few inches below the surface.

It is now necessary to deal with the excavations carried out on the south side of the church on the site of the chapter-house, the prior's house, and the sacristy. These excavations were made during July and August last for the erection of a lofty warehouse for Messrs. Israel & Oppenheimer, by Mr. Pamphillon, their architect. By their courtesy every facility was given to observe and measure anything of antiquarian interest found. All loose worked stones were presented to the rector and churchwardens to preserve in the church. Sir Aston Webb allowed Mr. Renton Barry to pay daily visits whilst the work was in progress. Mr. Maurice Webb paid frequent visits. The London County Council also sent representatives to take measurements. I myself visited the site three times a day, but the excavation was carried out so rapidly that even so we cannot be sure that some detail of interest did not escape us.

Prior to the purchase of the site by the present owners long and protracted negotiations took place, beginning in the year 1904, with the beneficiaries of Durran's estate, then in Chancery. These resulted in a grant being made, in exchange for a right of way, of two pieces of freehold land adjoining the church, one measuring 41 ft. by 19 ft., which included the greater part of the site of the sacristy, the other measuring 41 ft. by 5 ft., to form an approach



ST. BARTHOLOMEW THE GREAT, SMITHFIELD: ENTRANCE TO CHAPTER HOUSE

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thereto. The result is that the south side of the church can never again be encroached upon by secular buildings. This grant coincided with the gift by the present patrons of the benefice, Mrs. Bowen Boscarlet and Mr. Noel Phillips, her son, of the freehold of part of the ground on which the old house now stands, that at present serves as a vestry room and a dwelling. The other part of the ground has always belonged to the church, being the site of the south chapel already referred to. This gift of the patrons will enable the dwelling-house to be removed, and the south side of the church will then be entirely freed from buildings.

Work on the chapter-house site was begun in the last week in June. When the cottages, known as Cockerell's Buildings, were removed, excavation was begun at the west end of the site to a depth of 8 ft., thereby exposing the whole of the west wall of the chapter-house and of the slype. This wall is 4 ft. thick. The west side of it is in Pritchard & Burton's stables, which occupy the site of more than half of the east walk of the cloister. When the plaster was removed the great arched entrance from the cloister was discovered, with an arched opening on either side of it (pl. V).

The central archway (pl. IV, fig. 1) measures from the threshold to the crown of the arch 11 ft. 10 in. in height, and 7 ft. 2 in. in width. Some of the original tiles remain on the threshold. The work evidently dates from the time of the rebuilding of the cloister early in the fifteenth century. The apex of the arches of each of the two side openings is on a level with that of the centre one. The width of these arches at the springing is 6 ft. on the chapter-house side of the wall, but 8 ft. 4 in. on the cloister side. The compression of the outer sides of the arches, as seen in the photograph, is due to the fact that the width of the twelfth-century chapter-house was less than that of the three bays of the fifteenth-century cloister vaulting, with which these arches are concentric. To minimize the difficulty the width of these three bays of the cloister was made less than that of the other bays by 18 in., but even so compression was necessary to bring them within the chapter-house walls. The accompanying plan (pl. VI) will make this matter clear. These arches had all been bricked up, but we were allowed to remove the filling from the central one down to the threshold, and from the side ones down to the springing of the arches. The owners have kindly consented to the central doorway remaining open and exposed within their building, but of necessity the ground flooring of the warehouse divides it in two horizontally. The construction of the building would not allow of the same privilege being extended to the side arches; they have therefore been bricked up again, but they have not been destroyed. Let us hope that the owners on the other side of the wall may some time or another allow the three arches to be left exposed from their side.

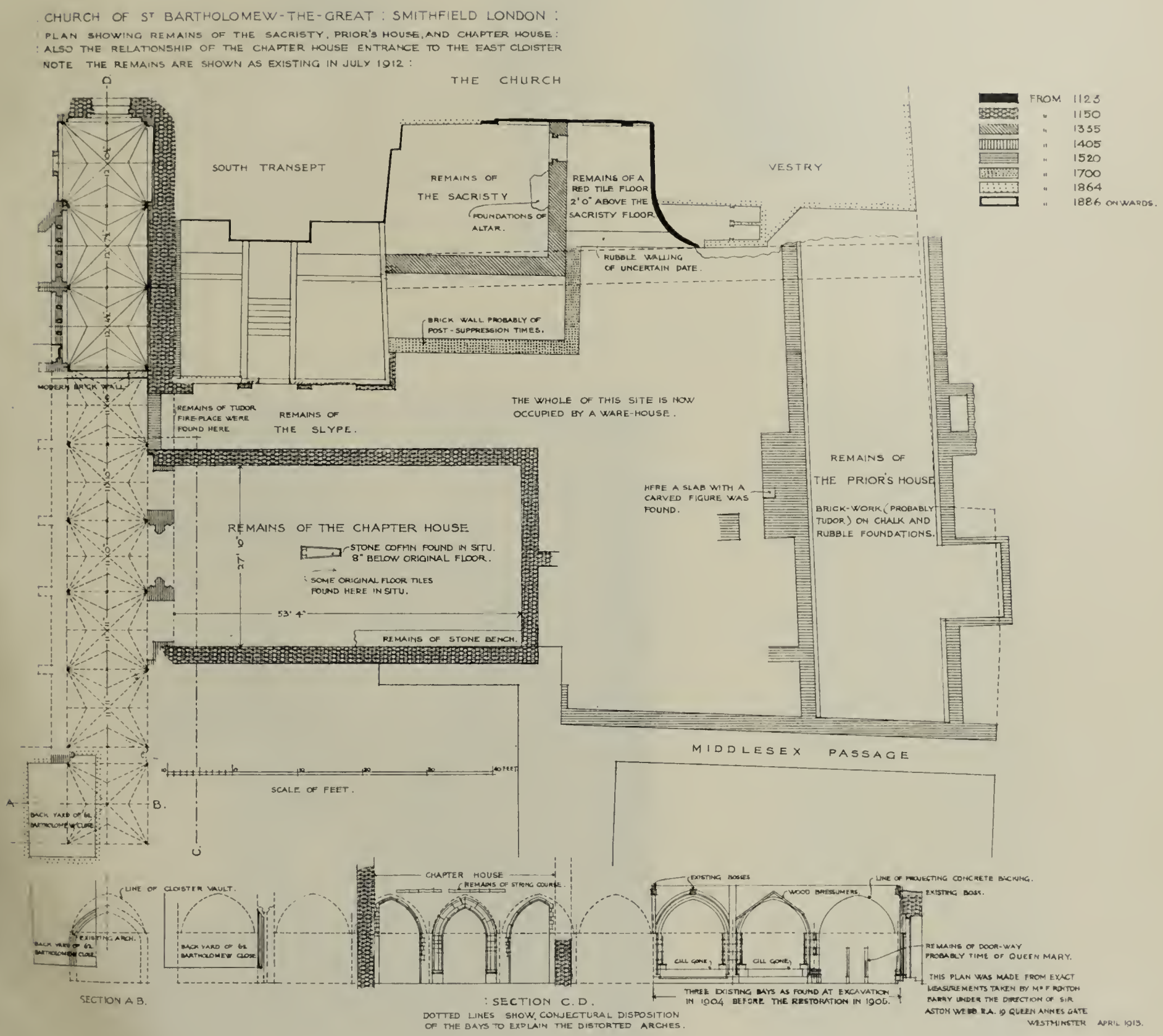
The opening up of this central arch has enabled a difficult point in connexion with the east walk of the cloister to be settled. In the back yard of no. 62 Bartholomew Close, in the tenancy of C. S. Saunders & Co., there is at the present time an arch, half of which Mr. Saunders has kindly allowed to remain exposed. It belongs to the southern end of the east cloister walk. It is not a transverse arch of the cloister vault, for its height from the ground to the apex is only 10 ft. 6 in. instead of 14 ft., which is the height of the transverse arches of the vault, and its internal width is apparently (for only one-half is exposed) 10 ft. instead of 12 ft. It was, therefore, an insertion. But on the supposition that the bays of the cloister were all 12 ft. 6 in. in length, like the three bays now in the possession of the church, this arch came in plan very awkwardly in about the middle of the eighth bay, a position which none of us, including Mr. Peers (who last March kindly gave much careful consideration to the question), could quite understand.

At the suggestion of Mr. Maurice Webb, the permission of Mr. Burton, of the firm of Pritchard & Burton, was obtained to penetrate at the base of the central archway to his side of the wall. There we found the base of the cloister vaulting shaft on the south side, and the remains of the other one on the north side. This enabled us to prove that the three bays of the cloister at this point were, as already stated, shorter than the other bays. This, when put on plan, brought the inserted arch described exactly beneath the transverse arch of the vault, between the eighth and ninth bays, and not in the middle of the eighth bay. It may therefore have been inserted to carry a gate to shut off the east walk, as at Westminster, or to carry the north wall of a building projecting over the cloister walk at this point.

The entrance from the cloister to the slype was not found. This is probably due to post-suppression alterations, for a Tudor brick fireplace of some pretensions was found inserted in the place where we expected to find the entrance.

On this west wall of the chapter-house, running above the entrance archway, and 15 ft. 5 in. from the chapter-house floor, is a stone string which it is assumed marked the floor of the night passage from the dorter to the church. It was therefore expected that some remains of a stair to the south transept might be found, but there was none. It was also expected that on the chapter-house floor some foundations of a vestibule wall or the bases of vaulting shafts might be found, but if there were any they were removed whilst none of us was on the site.

The chapter-house was rectangular, and measured 53 ft. 4 in. long by 27 ft. 10 in. wide. The walls were found standing to a height of some 5 ft., and on the south side there were indications of a stone bench. The floor was covered with plain red tiles measuring $8\frac{1}{2}$ in. square. In the centre of the floor,



PLAN OF THE SACRISTY, PRIOR'S HOUSE, AND CHAPTER HOUSE
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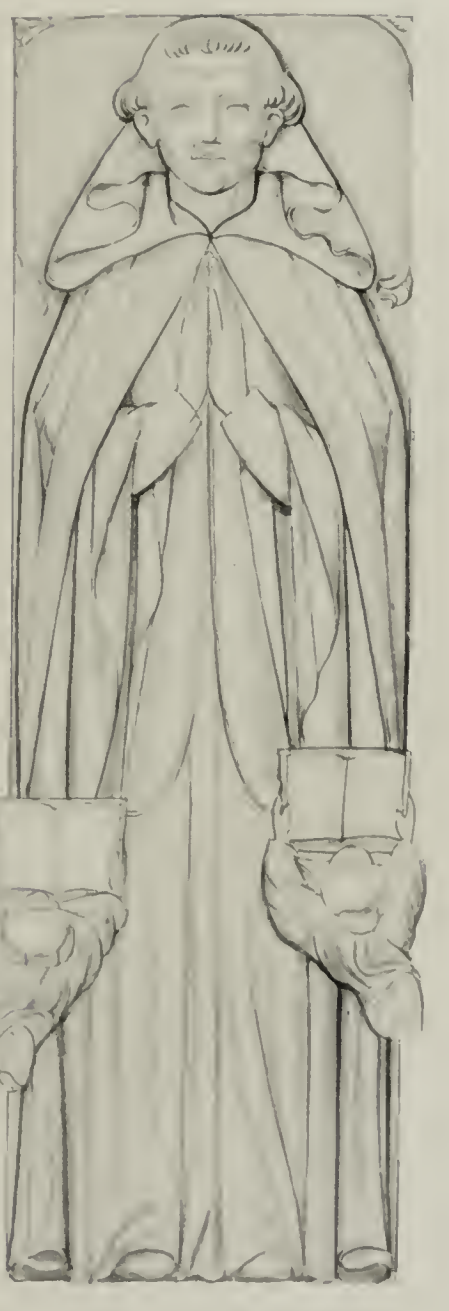
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Fig. 1. Thirteenth-century Arcading



Fig 2. Figure of an Augustinian Canon



C. R. Webb del.

Fig. 3. Effigy of Rahere from his tomb

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19 ft. 6 in. from the west wall, 14 ft. from the south, 14 ft. from the north, and 8 in. below the tiles, was found a stone coffin, which had been rifled at some distant date and the lid removed. Some yellow and blue glazed tiles found by the workmen on the floor of the chapter-house, measuring 10 in. square, covered, we were told, the site of the coffin, but as the latter was found at about seven o'clock in the morning none of us saw these tiles before they were moved. It is impossible to do more than surmise whose coffin this was, but as there can be little doubt that the chapter-house was built by Prior Thomas, the successor of Rahere (1144–74), it is not unreasonable to assume that it was his. Both the coffin and the tiles are now laid out on the floor of the cloister of the church, where they may be seen. John Carter, writing in the *Gentleman's Magazine*[1] in 1809, says that the chapter-house was in the 'style of Henry III's reign'. Pope Alexander V, in the year 1409, mentions that the then prior had rebuilt it.[2] Our vestry minute-books tell us that it was finally destroyed by the fire of the year 1830, which also did great damage to the south side of the church. The excavations verified all these statements, for there were found on the site a late twelfth-century capital and base, quite red from the effects of the fire, fragments of a thirteenth-century mural arcade (pl. VII, fig. 1), resembling that in the chapter-house at Westminster, and many examples of early fifteenth-century work, all of which are laid out on the floor of the cloister for inspection.

The slype, a passage 10 ft. in width between the south wall of the transept and the chapter-house, was exposed. In its north wall was found the lower part of a central doorway leading into the south transept, flanked by shallow twelfth-century pilasters, badly damaged and quite red from the fire of 1830. At the eastern end of the slype the south-east buttress of the transept was exposed, showing the splayed twelfth-century plinth.

By the middle of July all that remained of the chapter-house, except the west wall, had been cleared away. As the excavations went eastward the lower part of the walls of an old brick building of the early sixteenth century was uncovered. This was probably one of the monastic buildings. Further east again we came to the walls of the prior's house, built by Bolton (1505–32), as was probably the other brick building just mentioned. The walls of the prior's house were 2 ft. 3 in. thick, built of old English bricks, upon a foundation of chalk and rubble. They ran north and south, from Bolton's door in the south aisle of the church to Middlesex passage. The space between the walls of the house was 18 ft. 6 in. A stone water-channel ran apparently the whole length of the lower story of the house, one length of which we have preserved in the cloister.

[1] clxxix. 226.

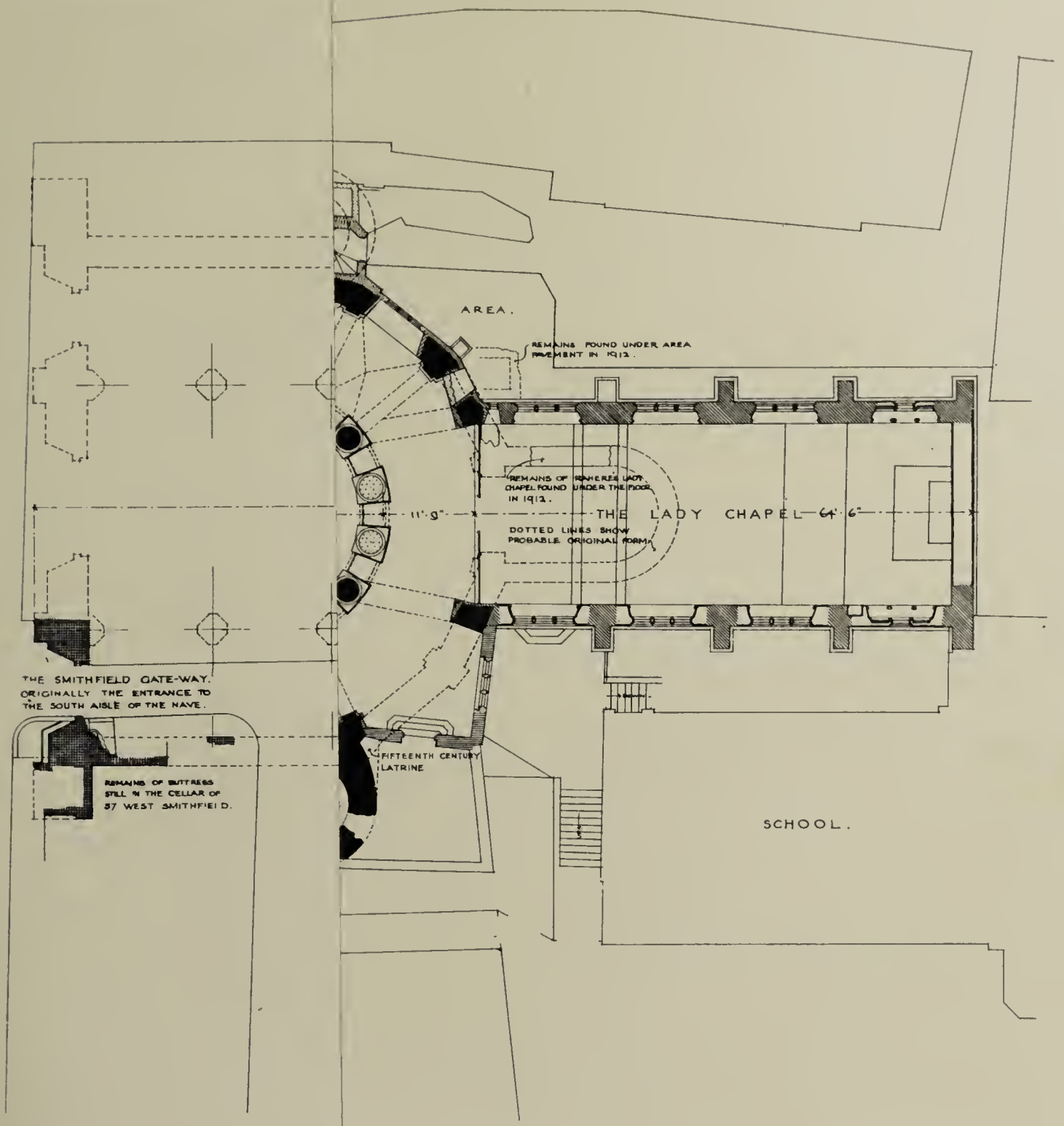
[2] *Cal. Papal Registers*, vi. 151.

The most interesting find during the removal of the remains of the prior's house in August was a Purbeck marble triangular slab, with a figure of an Augustinian canon, kneeling in an attitude of prayer, carved upon it in relief (pl. VII, fig. 2). The hands and head are unfortunately badly damaged. The slab measures 2 ft. 8 in. in height, and 1 ft. 6 in. at the base. It was evidently, as shown by the dowels, one of three or more slabs, with a central subject, before which the canon is kneeling. There are not many carved representations of Augustinian canons in this country. Two are at Hexham and Oxford, but the dress is more fully shown on the effigy of Rahere at St. Bartholomew's (pl. VII, fig. 3) than in any of the others, though it is very seldom referred to. Rahere is there clothed in a black cassock, over which is a surplice (which has at some time been painted black in error); over the shoulders and breast can be seen the almuce with the two stole-like appendages as worn early in the fifteenth century (which is the date of the effigy), whilst over all is the black cope and hood, as in the figure under consideration. The slab is exhibited with the other stones in the cloister.

Finally, reference must be made to the freehold piece of land acquired, which adjoins the church. It has been occupied for many years by buildings known as Pope's Cottages, which abutted on to the church. These cottages have been pulled down, and the site has been excavated to a depth of 6 ft., at which level we found the floor of the sacristy. The tiles, however, had been removed. The walls, to a height of about 3 ft., were found standing. In the east wall is a doorway with the base of a shaft on the jamb. This door led on to a tiled floor outside, which was 2 ft. higher than the chapel. Against this same east wall, inside, is what appear to be the foundations of an altar, measuring 4 ft. long, 3 ft. wide, and 1 ft. high. The south wall of the chapel was unfortunately outside our bounds, and was in consequence carted away. What appears to have been a holy-water stoup was among the finds, but whether it was inside or outside the chapel we have no record. At the east end of our freehold plot we uncovered part of the west wall of the south chapel and the beginning of the curve of the apsidal south wall. More of this will be exposed when funds are available.

The last find to be recorded from this plot is of interest, though it is in a sadly battered condition. It consists of portions of two original twelfth-century pilaster buttresses against the south wall of the church, fragments only, but still fragments of Rahere's own work.

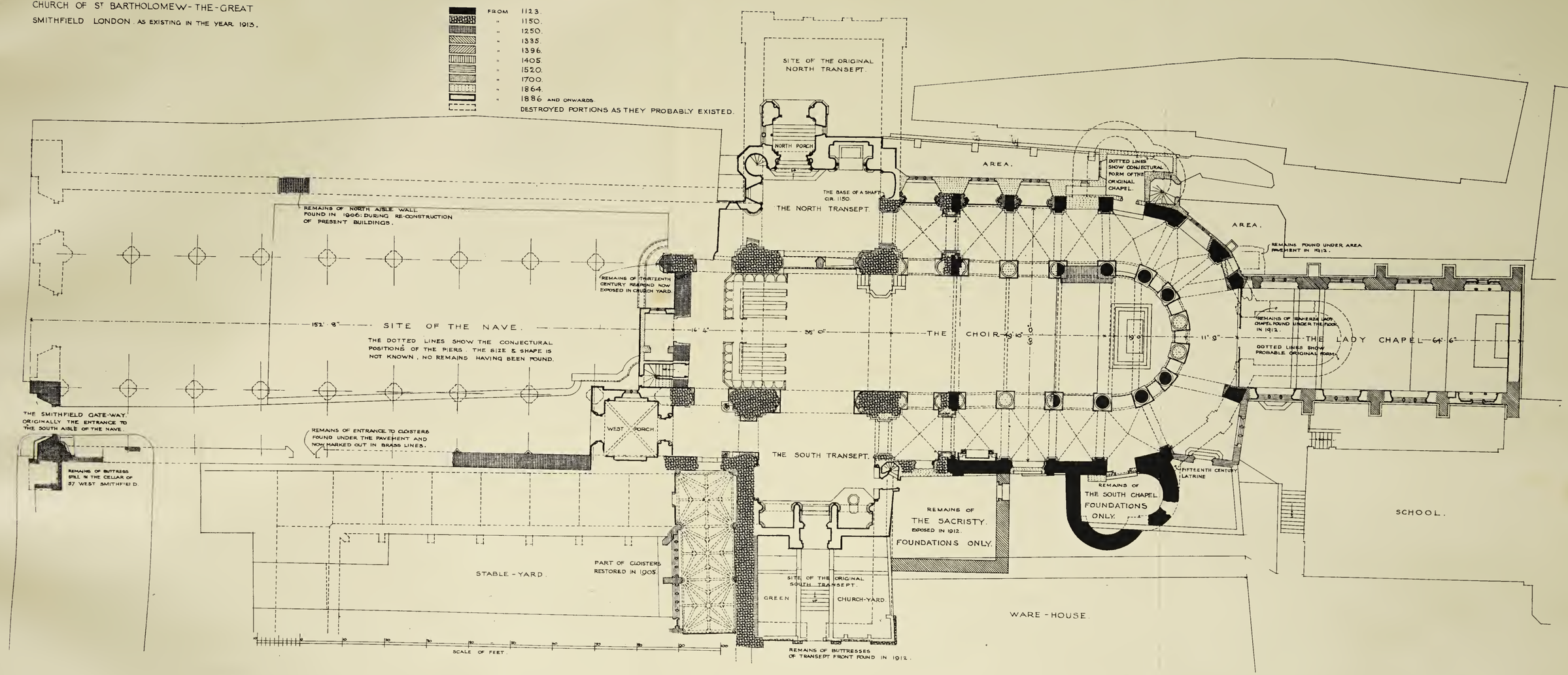
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APRIL. 1913.

CHURCH OF ST BARTHOLOMEW-THE-GREAT
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THIS PLAN WAS MADE FROM EXACT MEASUREMENTS TAKEN BY Mr F. RENTON BARRY, UNDER THE DIRECTION OF SIR ASTON WEBB R.A. ARCH.T 19 QUEEN ANNES GATE WESTMINSTER. S.W. APRIL, 1913.

GROUND PLAN AS EXISTING IN 1913. ST. BARTHOLOMEW THE GREAT, SMITHFIELD

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IV.—*Stratification at Swanscombe: Report on Excavations made on behalf of the British Museum and H.M. Geological Survey.* By Reginald A. Smith, *Esq., F.S.A., and* Henry Dewey, *Esq., F.G.S.*

Read 17th April, 1913.

One of the finest gravel-pits in the world for flint implements is in process of extinction, and a final opportunity has been given for studying its stratification with a view to classifying, however roughly, the thousands of specimens from this site that have passed into public and private collections both at home and abroad. Every collector is familiar with the name of Swanscombe, a village on the south bank of the Thames between Dartford and Gravesend, and many have procured implements from the workmen on the spot without realizing to the full the necessity of fixing the horizon of each, if their purchases are to be of scientific value.

The largest and best-known of the Swanscombe pits (fig. 1), dug primarily for the chalk that lies under a varying thickness of Pleistocene beds, is bounded on the east by Craylands Lane, in view of the railway embankment and river. It was formerly known as Milton Street pit, as its south-east angle adjoins that thoroughfare, but Barnfield pit is the official name given by the owners, the Associated Portland Cement Manufacturers, of Northfleet. After being worked for many years the pit has now practically reached the limits of the property, a fact that was kindly communicated by Mr. George Butchard, a manager of the Company, who readily secured the sanction of his board and gave every facility for a systematic examination of the implement-bearing beds. Ten days in March and April were spent in excavating and examining the Pleistocene deposits in Barnfield pit, and two days in the small pit adjoining its south side (now called Milton Street pit), by kind permission of Mr. E. H. Colyer.

The deposits in which palaeolithic implements have been found near Swanscombe lie at two levels, namely, at 100 ft. and at 50 ft. above Ordnance Datum. The deposits lying at 100 ft. consist of gravel, sand, and loam; those at 50 ft. of unassorted rubbly chalk, sand, and loam, constituting the so-called Coombe Rock.

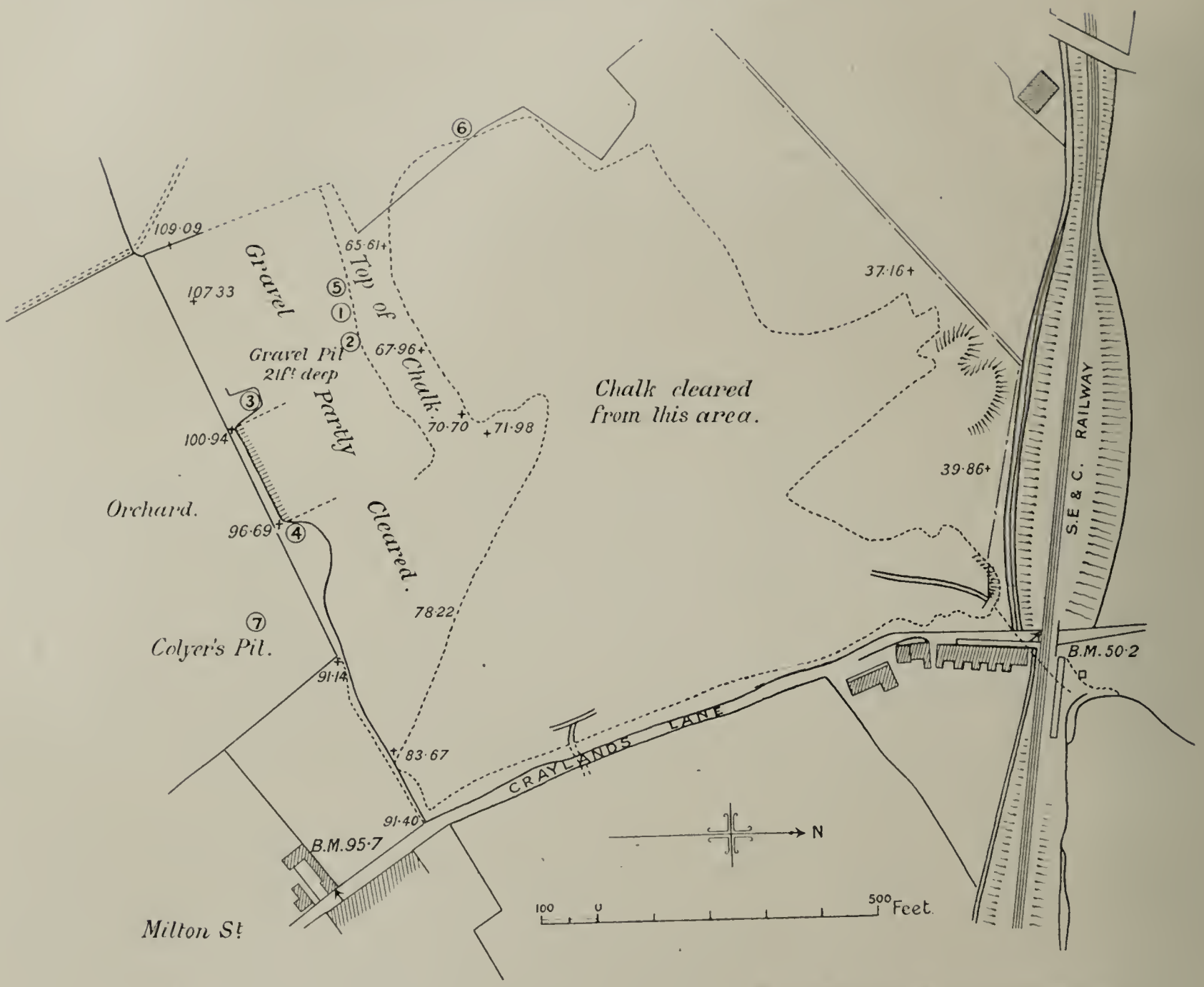


Fig. 1. Map of Barnfield pit, Milton Street, Swanscombe, Kent (*numbers in circles denote excavation-sites*).

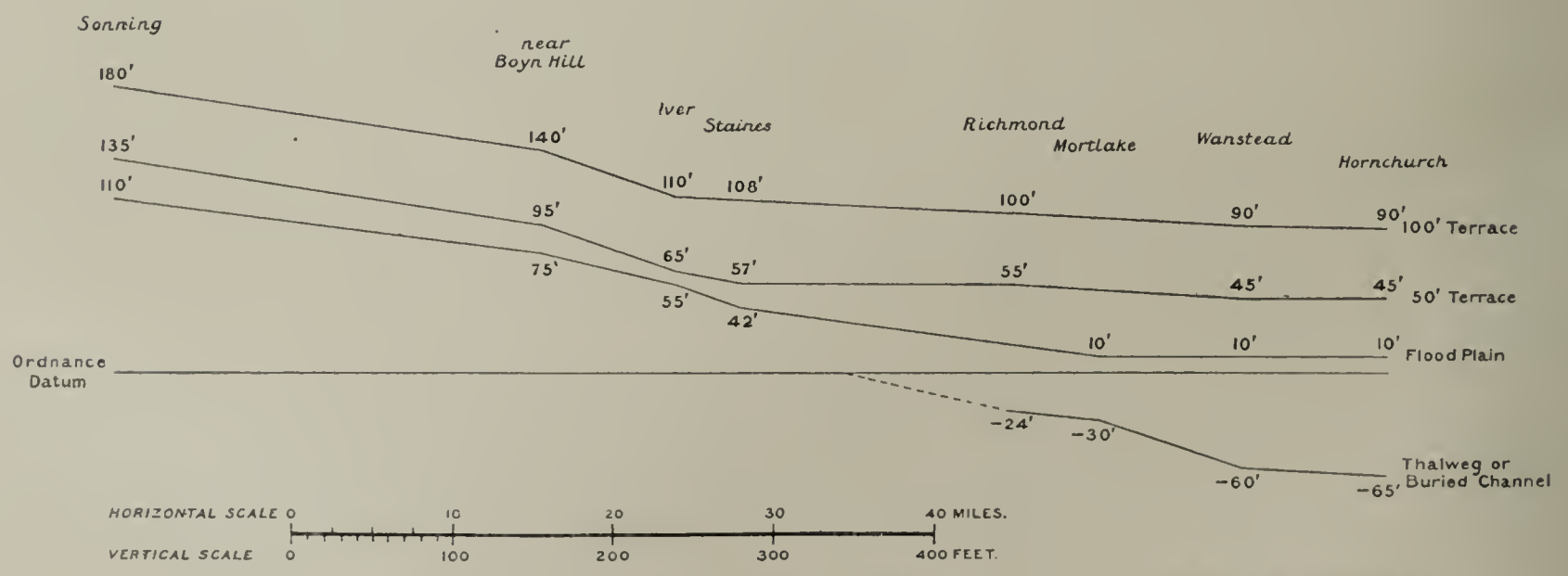


Fig. 2. Diagram of the Terraces of the River Thames (*Heights = top of solid rock on which gravels rest*).

The gravels lie on a flat terrace which notches the hill-slopes. This terrace is remarkably uniform in height, maintaining an average of 90 ft. above O.D. from Gravesend to near Staines, beyond which place it rises steadily towards the west. For this reason it has received the name of the 100 ft. terrace, and it is well exposed near Swanscombe and Dartford. The terrace is some 40 ft. above another, which is also traceable at a uniform height up-stream, and has been called the 50 ft. terrace (fig. 2). Tributary valleys cut through the upper terrace, leaving remnants of it which can often be recognized on both sides of the tributary valley. Such a tributary occurs near Northfleet: it is called locally the Ebbsfleet, and had cut a valley at the time when the Thames had

Transverse Section of Ebbsfleet Valley, from near New Barn to Northfleet.

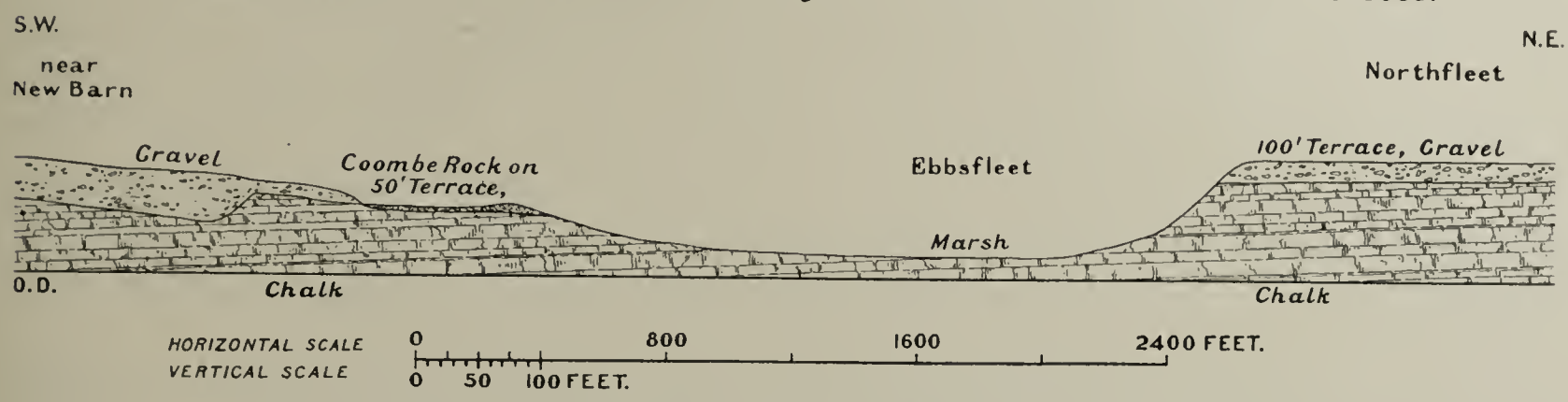


Fig. 3. Section showing position of Coombe Rock at Southfleet pit, Northfleet.

eroded its valley and formed the 50 ft. terrace (fig. 3). The tributary valley was partially filled with the wash of rubbly chalk and sand (Coombe Rock), but soon after eroded again by the stream.

TERRACES OF THE RIVER THAMES

Average heights of solid shelf above Ordnance Datum, and depth of lowest channel.

Horizons in ascending order.	At Staines	At Richmond	At Wanstead	At Hornchurch and Swanscombe
Sunk Channel or Thames Gorge	—	−24 ft. O.D.	−60 ft. O.D.	−65 ft. O.D.
Lowest Terrace or Flood-plain	42 ft. O.D.	17 ft. O.D.	10 ft. O.D.	10 ft. O.D.
Middle or 50-ft. Terrace	57 ft. O.D.	55 ft. O.D.	45 ft. O.D.	45 ft. O.D.
High or 100-ft. Terrace	108 ft. O.D.	100 ft. O.D.	90 ft. O.D.	90 ft. O.D.
Distance from one locality to next eastward	17 miles	13 miles	8 miles to Hornchurch 12 miles to Swanscombe	

The terraces of the lower Thames have already been investigated with much success by two able observers, Messrs. Kennard and Hinton, as we are glad to acknowledge, inasmuch as their general conclusions accord very closely with the results obtained by official excavations in the spring of last year. Some attention was given to both terraces, but most of the work was done on the higher or 100 ft. terrace, and a description of the pits with the implements found at the various levels follows in order of importance.

Barnfield Pit (Milton Street).

Barnfield pit is situated on the west of Craylands Lane, about half a mile north-west of Swanscombe church. The chalk workers, in order to get clean chalk for the manufacture of cement, remove the deposits of gravel and sand from its surface by means of steam navvies. As a result a fine exposure of these deposits was produced on the western side of the pit. The section showed some 40 ft. to 50 ft. of sand, gravel, and loam, forming a series which persisted throughout the pit. The deposits, therefore, presented an opportunity of proving the relationship of the implements to the several beds and of establishing the sequence of types among the implements themselves.

The section is shown diagrammatically in figs. 4, 5, 6, and a detailed description follows:

Name of bed.	*Average thickness.*	*Character of bed.*
Upper Gravel	4 ft. 6 in.	Irregular pockets and clusters of bleached gravel in stiff brown clay, resting irregularly upon the loam beneath it.
Upper Loam		Loam, usually structureless, but shaley in part.
Middle Gravel	8 ft.–18 ft.	Current-bedded sand, with spots and specks of manganese dioxide near the top layer; and seams of gravel. Gravel.
Lower Loam	2 ft.–4 ft.	Purplish brown loam with lenticular masses of marl.
Lower Gravel	6 ft.	2 ft. yellow gravel. 2 ft. white gravel. 2 ft. red gravel, bottom layer very coarse.
	0–15 ft.	Thanet Sand.
'Bull-head'	1 ft.	Layer of green-coated flints. Chalk.

On the northern side of the pit the Lower gravel overlaps the Thanet Sand and rests directly on the Chalk. This overlap is due to the general south-westerly dip of the Thanet Sand and the Chalk.

The Lower Gravel is divisible into three layers of different colours, the lowest being dull-red, the next white, and the top layer yellow. Each layer

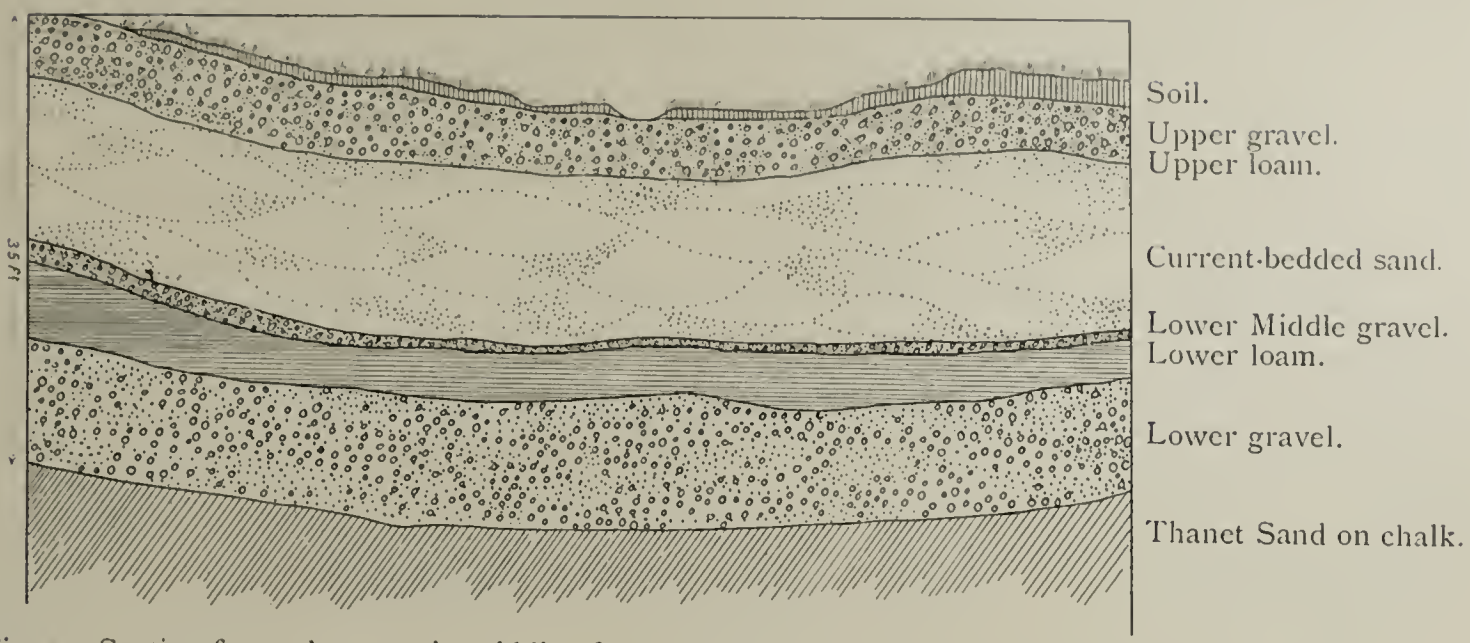


Fig. 4. Section from photograph, middle of west face of Barnfield pit, Swanscombe.

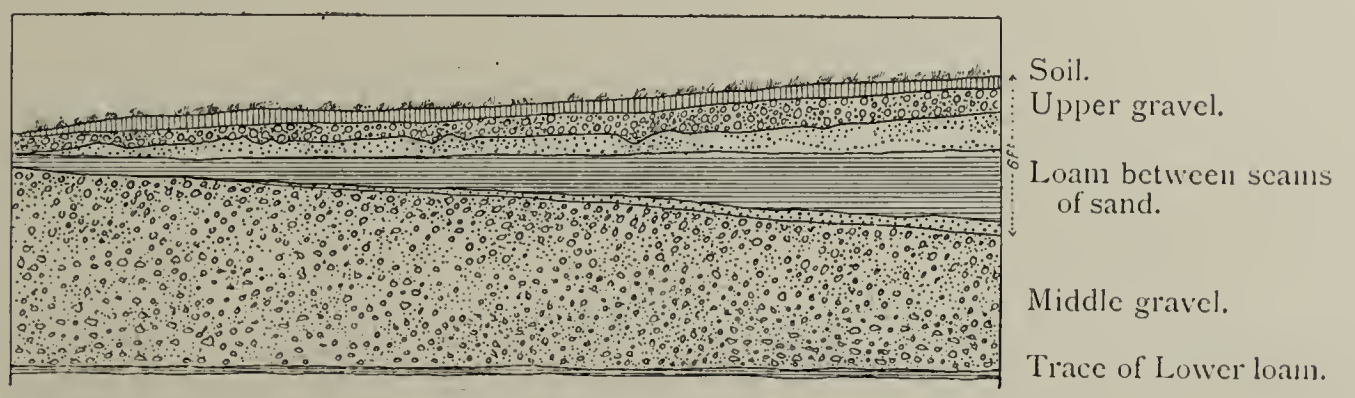


Fig. 5. Section from photograph, in the Bay, Barnfield pit, Swanscombe.

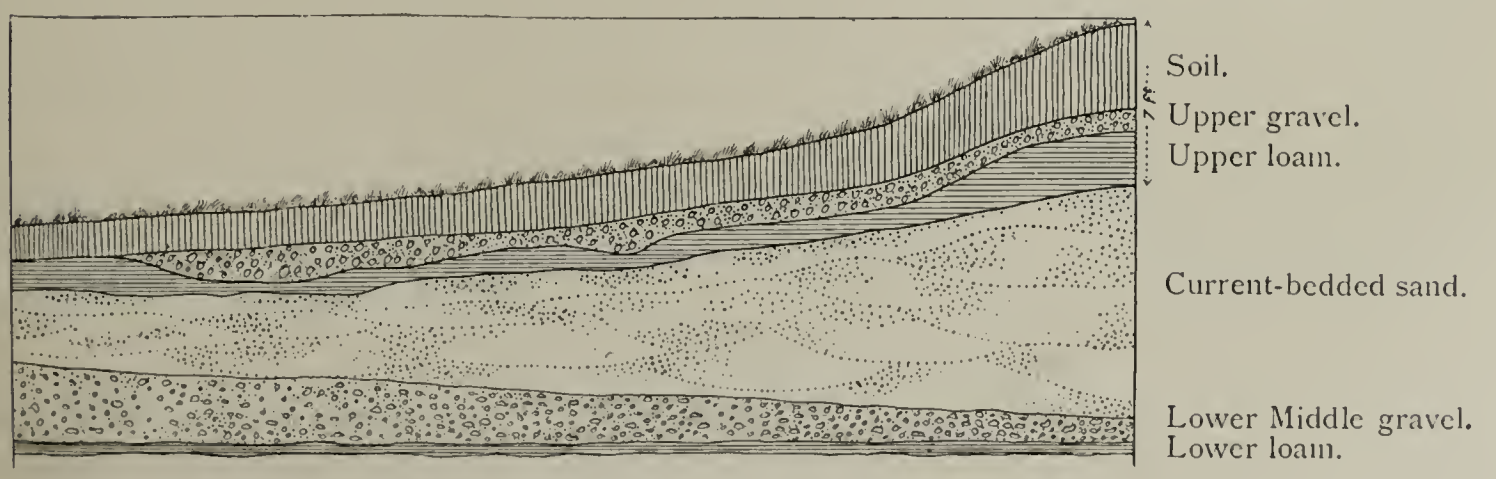


Fig. 6. Section from photograph, south-west angle of Barnfield pit, Swanscombe.

is some 2 ft. thick, and the total thickness of the Lower gravel remains uniform throughout the pit. The 'uncallow' had been removed down to the Lower loam, and our excavations were made at two points (1 and 2 on map), where the full thickness of the Lower gravel was exposed below the loam, the latter effectually preventing any admixture of débris from the higher beds.

At its base it consists of coarse, partially abraded flints of a mahogany or chocolate brown colour, along with large nodules of flint derived from the Chalk. Near the bottom of the red layer most of the bones, teeth, and tusks of mammals were found. The workmen state that bones and teeth occur commonly at this level, but are not found in overlying beds; and our excavations confirm this observation. The remains are tender and friable. We found many splinters and fragments, and one whole tusk of *Elephas antiquus*, which measured $6\frac{1}{2}$ ft.

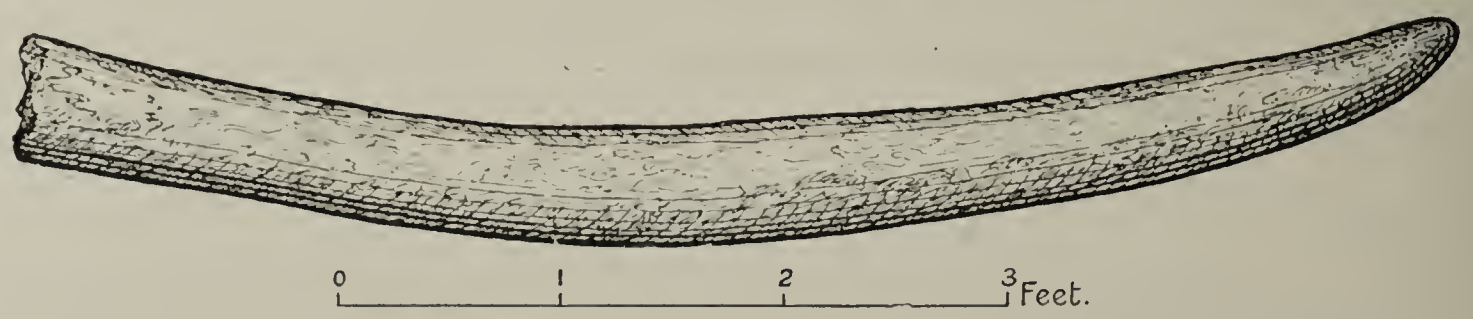


Fig. 7. Tusk of *Elephas antiquus* (straight-tusked elephant), from Lower gravel, Barnfield pit.

in length (fig. 7). It was photographed, but broke to pieces on being moved. A tooth was discovered near it, which has been identified by Mr. H. A. Allen as of *Elephas primigenius*. It is now in the Museum of Practical Geology.

The gravel consists principally of flints, both sub-angular fragments derived directly from the Chalk and water-worn pebbles from Lower Tertiary strata. In addition there is about three per cent. of chert from the Hythe beds of the Lower Greensand; pebbles of white vein-quartz, possibly from the Wealden; and quartzite of varying colour and texture. These lie in a coarse sand, consisting of sharp fragments of quartz, with some flint and loam. The colours of the three layers are due to the different states of oxidation of the iron.

The human work revealed by excavation in the lowest gravel was rather a surprise both as to its quantity and quality. From the workmen's point of view this horizon was barren, and it is probable that collectors have few, if any, specimens known to be from this gravel. The 'industry' consisted almost exclusively of thick flakes, with prominent bulbs of percussion and a minimum of flaking, due to use or shaping, on the edges (fig. 8). Nearly 200 flints showing signs of human work came from this gravel, and of these more than two-thirds were found in the lowest or red band which rests immediately on the Thanet Sand. Enough was recovered to give a good idea of the flint-work contemporary with the gravel and to justify the conclusion that implements

are exceptional at this horizon, while hand-axes of the ordinary type are entirely wanting. The nearest approach to the ordinary type is represented in fig. 9,

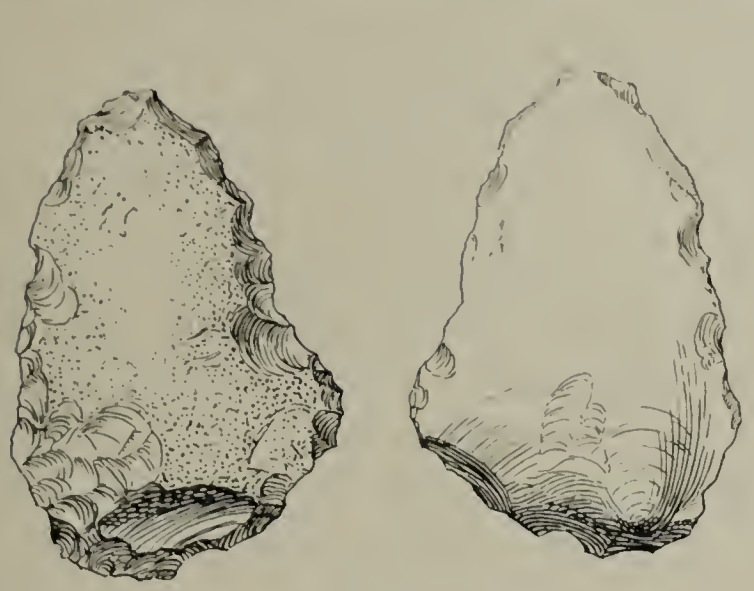


Fig. 8. Flake with unusual edge-chipping, Lower gravel. ($\frac{2}{3}$)



Fig. 9. Flint simulating an implement, Lower gravel. ($\frac{2}{3}$)

which shows a little use or trimming on the edge near the point, but has been largely shaped by natural fractures. A few nodules chipped at the point and squared at the butt (fig. 10) were also found, which, if accepted as human work, would correspond to the Strépy culture.



Fig. 10. Nodule chipped at point, perhaps of Strépy type. ($\frac{2}{3}$)

The prevailing surface-colours of the worked flints from this gravel are yellow and brown, a new fracture showing grey, almost dove-colour, with yellowish markings. This marbling is accentuated by iron-staining on the surface, and the result is often a pale brown, with broad black and mahogany-coloured bands. A typical flake is about $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in., and at the butt about 1 in. thick. The longest is 6 in. by $3\frac{1}{2}$ in., the heaviest weighs 1 lb. 10 oz. ($\frac{3}{4}$ kilogram); and it was noticed that most of the heavy flakes were only a few inches above the Thanet Sand, practically none occurring in the white and yellow bands above. Many also show a black fracture with grey or yellow knots, which, like the knots in wood, are of greater density, and do not undergo the change called patination. Others again are yellow on the flaked surfaces, the colour merging into black just below the crust, which is usually thin. On most of the worked flints is a dull lustre, but a few have a bright lustre and spots of gloss as bright as porcelain.

The foregoing description applies also in most particulars to the com-

paratively few worked flints from the white and yellow bands of the Lower gravel, and a specimen from the white band is selected for illustration as showing some approach to a palaeolithic implement of recognized type. It is marbled brown and yellow, and all the crust has been removed by bold primary flaking, leaving a rough but fairly symmetrical disc-like implement (fig. 11), probably owing its form to the accidents of chipping, and not to design.



Fig. 11. Facetted flint, from Lower gravel. ($\frac{2}{3}$)

The yellow or brown layer forming the upper third of the Lower gravel yielded not more than ten flakes, all of the same character as before, with no semblance of a palaeolithic hand-axe or of any advance in technique.

The Lower Loam is a persistent bed 3 ft. to 4 ft. thick, that everywhere seals the Lower from the Middle gravel. It consists of fine, tenacious loam, purplish-brown in colour, often speckled and streaked with black manganese dioxide. Here and there are lenticles of light buff-coloured marl, consisting of broken shells and pellets of chalk with sand grains. The marl is penetrated by minute tubules, the spaces arising from the decomposition of roots of plants which grew on the surface before the overlying gravel was deposited. Shells, though fragile and difficult to extract in perfect condition, are abundant, and by carefully scraping away the matrix a representative series was obtained. The parcel was submitted to Mr. C. N. Bromehead, to whom we are indebted for the following identifications:

Hyalinia nitida,	Müll.
Helix (*Tachea*) *nemoralis*,	Linn.
Helix (*Hygromia*) *hispida*,	Linn.
Succinea sp. (? *oblonga*, Drap.)	
Cochlicopa lubrica,	Müll.
Bithynia tentaculata,	Linn.
Sphaerium corneum,	Linn.
Unio or *Anodon* (fragments).	

Mr. Bromehead remarks that the molluscs are such as frequent still fresh water where reeds and rushes grow in profusion. This is the only indication of climatic conditions, as we were unable to find any implements or bones in this bed of loam.

The Middle Gravel consists of beds of gravel and sand which vary locally. It ranges in thickness from 8 ft. to 18 ft., but is usually about 13 ft. thick. The base is everywhere a bed of gravel some 2 ft. thick; overlying this there

is on the south another 16 ft. of gravel, but on the north current-bedded sand of a pale yellow colour, the sand laterally replacing the gravel. The sand contains thin seams of brown clay, and is speckled with black spots of manganese dioxide at its summit. The gravel consists almost wholly of flints derived either from the Chalk or the Tertiary pebble beds. There are in addition pebbles of white vein-quartz and some quartzite and limestone, but we were not able to find much chert from the Lower Greensand. In this respect it differs from the Lower gravel, and it also contains much more sand and smaller stones. We found no shells, bones, teeth or tusks, but implements were common. These were most commonly met with in certain seams which were partly cemented with iron and manganese oxides.

Our excavations in the Lower Middle Gravel were confined to a thin band a little south of site 1 (on map). At the spot excavated it was about 2 ft. thick, lying between the Lower loam and the overlying current-bedded sand. This stratum was by far the most prolific, at least in that portion of the pit still existing; but tales of extensive discoveries of beautifully worked tools larger than most found in recent years are not precise enough to enable us to determine their exact horizon. In former years the finest implements were, according to the workmen, found towards the centre of the pit, north-east of the spot where our best series came to light. Our results go to show that the finest implements of Chelles types, that is practically all but the ovate specimens and those with white patination, were found in the Middle gravel.

The commonest form of implement from this level, and the pit in general, is of a flattened pear-shape, about 3 in. to 4 in. long, roughly chipped and pointed, with heavy butt often retaining the crust. These are lustrous and often black, with no signs of the battering due to water-rolling, and apart from stratigraphical considerations would be assigned to the Chelles stage, as represented on the Somme. The larger and better chipped implements tell the same tale. They are often brown, but show comparatively little secondary working as a rule, and are evidently *in situ*. The accompanying plate represents typical forms of this industry.

Description of Plate IX.

Implements from the Middle Gravel.

No. 1. Specimen made from a 'green-coated flint' (from the base of the Thanet Sand), black lustred with grey dull knots and brown below the crust, which covers the butt on both faces. The tip is broken and the upper tapering part is thin, with accurate primary flaking and very little dressing or secondary work. The type is well known from the Thames and Somme gravels, and in France goes by the name of *ficron*, from a superficial resemblance to the iron point of a punt-pole.

No. 2. Very like no. 1, of the same kind of flint and of the same proportions, but about half the weight ($5\frac{3}{4}$ oz. against 11 oz.). It is somewhat finely trimmed below the point on the reverse face, and, like the majority of specimens from this gravel, unrolled.

No. 3. Yellowish flint with a mahogany layer on part of face. A hand-axe boldly flaked with due regard to symmetry, thickest in the centre, and all the crust removed, the butt being provided with a sharp wavy edge.

No. 4. A small sub-triangular hand-axe, fairly thin and regularly chipped: one small patch of crust on one face at the butt, which is edged and straight. Black and yellow flint with pale yellow spots. This is perhaps the latest form from the middle gravel, and, like no. 9, heralds the ovate implement of St. Acheul type.

No. 5. A massive triangular tool weighing 1 lb. 2 oz., with thick crusted butt, and the whole surface coloured by iron. Edges straight, and the section at the middle a lozenge. A large example of a type common at Swanscombe, and one of the Chelles forms in France.

No. 6. Flat pear-shaped implement, lustred on one face only, marbled brown with yellow knots. Cutting-edge all round, fairly even, and no crust retained on the butt. An advanced type, but still belonging to the Chelles horizon.

No. 7. Greyish-yellow with black patch on both faces. The butt roughly chipped with a little crust remaining; the sides sharp and fairly even. Thickest at the butt and tapering towards the point: a refined form of no. 5.

No. 8. Similar to last, with black vein on both faces. The butt with platform at both angles, but otherwise sharp and without crust. Serves to link no. 7 with the following ovate implement.

No. 9. Ovate implement, marbled brown and black, symmetrical with edge all round except at angle of base, where the original striking plane forms a platform with original bulb of percussion. Thickest just below centre, and of latest Chelles date, beginning the St. Acheul series.

Besides those illustrated in the plate, a good series was found during an excavation of the Lower Middle gravel, presenting some interesting features, but no evidence of mixture or redistribution. Sixteen rank as implements, and of these ten are of the pointed type more or less pear-shaped. In three cases the thin end is broader and the outline approaches the heart form, the butt being partially crusted and proportionately massive. One is roughly chipped into a point from a flat pebble, and recalls the Strépy-like work of the gravel below, though there the pebbles were cylindrical and much larger. Five conform to the commonest Swanscombe types, which may be considered as a development of the unique specimen from the Lower gravel, though there is little to show that the latter was an intentional product. A still greater improvement is noticed in another specimen from this horizon which resembles fig. 12 (from the upper part of the same gravel), but is rougher and thicker at the butt. Two points of what must have been large well-flaked implements were also found, broken straight across, and now forming regular triangles with flaking on both faces. The better worked of the two is patinated and stained with oxide of iron, a deposit of which adheres to one face; the other is irregularly flaked, and is black unlustred flint with grey knots and a patch of



FLINT IMPLEMENTS FROM THE MIDDLE GRAVEL, BARNFIELD PIT (⅓)

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thin grey crust. A kidney-shaped implement is exceptional, one face fairly flat, and both largely encrusted and slightly stained with iron. Somewhat surprising is an end-scraper on a ridged blade, quite in the style of the Cave period. It is 2·6 in. long, with signs of use at the end, and trimmed unevenly along both side-edges. A series known to come from the Lower Middle gravel close to the site of our excavation has been kindly lent for study by the Cement Company, and comprises several chopper-like tools with curved cutting-edge and thick back. There are also several small implements of pear-shape outline with one flat face; these may be regarded as hand-axes made from flakes instead of nodules, contrary to the practice of the time, and the pale-yellow patina of a large example should be noticed. Large untrimmed flakes from the Lower gravel have already been noticed, but one weighing 1 lb. 6 oz. from the Lower Middle gravel is remarkable for the scratches resembling glacial striae on its plain face, which bears an unmistakable bulb of percussion, and shows considerable skill on the part of the flint-worker. One truncated implement of flattened pear-shape, with the cutting-edge interrupted at one side of the butt, has lost its point, and gives a clue to the original appearance of the two implements of which the points were found in our excavation.

In the recess named by us the Bay (4 on map) the top 9 ft. of the Middle gravel was tested. Below our platform the gravel continued with some intercalated sand to the Lower loam, and on the top of the worked face the Upper loam occurred 4 ft. thick, surmounted by $1\frac{1}{2}$ ft. of soil. The lower part of the 9 ft. dug proved barren, and about 3 ft. up was a band cemented with iron oxide, the iron-stain being more marked on several worked flints in the upper part of this gravel. From the top, perhaps from the junction with the loam, came a triangular implement with straight flat butt, without crust, and a smaller copy of pl. IX, fig. 5, though the butt may possibly be imperfect. Another implement, from a slightly lower level, is 3 in. long, of the ordinary pointed form, black and olive colour, with some crust on and near the butt. There were besides no less than 78 flakes of the same character as those from the Lower Middle gravel, except that some half-dozen show a white patina more or less developed. This stage is exemplified by a well-shaped hand-axe 4·8 in. by 3 in., in the possession of Mr. William Wright; it has a cutting-edge all round, the under-surface trimmed flat, and the thickest part just below the centre, where a white surface surrounds a small patch of crust. If the white patina signifies a later stage in the formation of the Middle gravel, it is possible that hand-axes with one flat face were in fashion longer than the doubly convex pear-shaped specimens. Several in the Company's collection known to come from the Lower Middle gravel are of this form without any trace of white patina, but the flat face is a plain fracture with bulb of percussion, not chipped into that condition.

Immediately west of the Bay a ridge of the Middle gravel (3 on map) had been left by the steam-navvy and projected northwards, showing that the gravel thinned out here to about 6 ft. between the Upper and Lower loams. About 2 ft. below the base of the Upper loam was found the small implement here illustrated (fig. 12). It is worked on both faces, and is uniformly pale brown, no doubt due to iron-staining. A symmetrical specimen of flat pear-shape, 3·7 in. long, as well as a roughly chipped example of the same type, came from the middle of this bank of gravel. A broad, almost heart-shaped hand-axe, brown with white markings, was also found, as well as thirty flakes closely resembling those from the Lower Middle and Lower gravels, except that a few from the ridge show a tendency to white patination.



Fig. 12. Brown implement from Upper Middle gravel, Barnfield pit. (⅔)

The collection of flints from Swanscombe[1] in the British Museum is not a large one, and details of finding are in most cases wanting. A series acquired from Mr. H. Lewis in 1895 includes many specimens, marked simply 'Kent', that probably came from the Milton Street pit; others marked 'Swanscombe' may or may not have come from the Barnfield pit, as other pits were formerly worked in the neighbourhood,[2] while the few labelled 'Milton Street' cannot be accurately placed, and are therefore not of great importance, though they may be briefly mentioned here in view of future discoveries. Twenty-eight years ago the aspect of this great pit was probably very different, and it is difficult to determine what weight should be attached to the few indications of level given. On the one hand, two large typical Chelles hand-axes were 'found together in the top loam', whereas two elongated specimens (one a thick ovate) were 'found on the chalk beneath the top loam'. Twenty other specimens, smaller but typical of the Middle gravel, are said to come from the top loam, and it may be that at one time a face was exposed showing only a band of loam between the solid chalk and the soil. Two larger hand-axes, like the pair just mentioned, are said to be from the gravel, an indication of little value without further details; but the occurrence of late St. Acheul date should be noted in view of many recent discoveries in this and other neighbourhoods. Confidence in the dictum that surface and neolithic finds are synonymous is on the wane. Of about twenty specimens of Chelles type on exhibition four are

[1] The large collection formed by the late Mr. Stopes has been disposed of to the National Museum of Wales at Cardiff, but cannot be exhibited for some years.

[2] One lies about a quarter-mile east of Swanscombe Church, and another about a half-mile north-east of the church, abutting on the main road.

marked 'Swanscombe' and as many 'Milton Street', all larger than the average, and of varying colour, with hardly a trace of rolling. One heavy ovate from Milton Street resembles fig. 9, pl. IX, but is heavier towards the butt, and the same provenance is given for a long pointed oval specimen and a broad and flat implement (called by the French *limande*), the latter being exceptional as made of chert.

All so far mentioned from the national collection may well belong to the time of the Middle gravel, and cover the period known (for want of a better name) as Chelles; but there are also specimens of the rare St. Acheul forms from this site, and the general occurrence of white patina at that stage is of

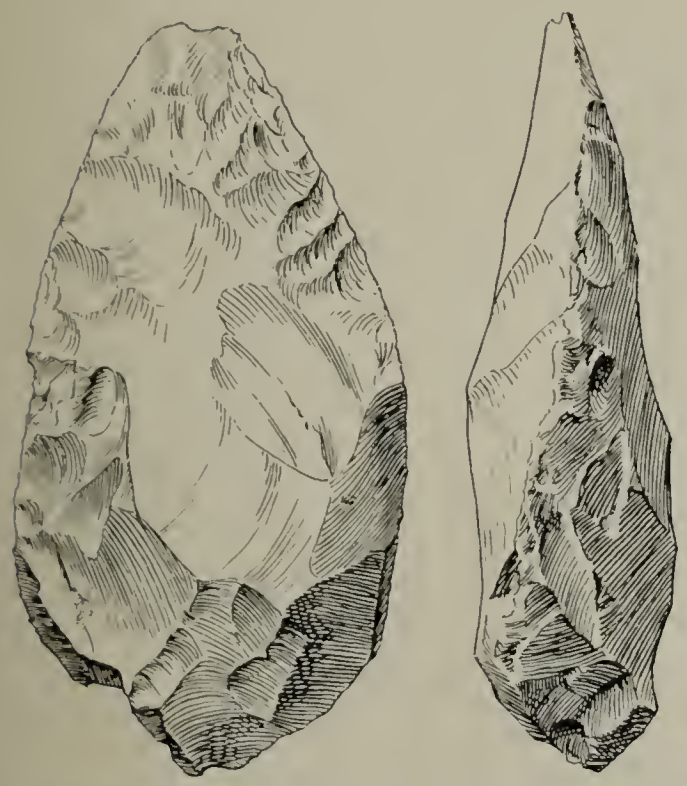


Fig. 13. Implement with white patina, showing curved edge, Barnfield pit. ($\frac{2}{3}$)



Fig. 14. Implement with creamy patina, Upper gravel, Barnfield pit. ($\frac{2}{3}$)



Fig. 15. Pear-shaped implement with white patina, Barnfield pit. ($\frac{2}{3}$)

special moment. A finely worked flat oval implement, white on both faces, with the cutting-edge all round, may be referred to St. Acheul I, and is labelled 'Swanscombe', and a smaller specimen from Milton Street, with the same patination, was found under 15 ft. of gravel. From the latter site come also a fine twisted ovate slightly rolled, white except for a bluish patch and grey knot, and a sub-triangular specimen with one face white and the other yellow, with bluish-white streaks of incipient patination. Smaller specimens have, however, been found without the white patina; for example, an ovate, 3·3 in. long, untwisted and greenish-yellow, labelled 'Milton'; a sharp cordate specimen from Swanscombe; a twisted specimen stained brown and showing a grey patina on a more recent fracture; and a few very small cordates, marbled and unrolled, sometimes highly lustred, and referable to St. Acheul II. It is regrettable that

these forms were not traced to a definite horizon in the pits, as they are evidently rare, and at present our excavations have failed to disclose them, though there is some indication at least that one horizon for the white implements (figs. 13, 14, 15) is immediately above the current-bedded sand, at the base of the Upper loam, for which there is evidence of date at St. Acheul itself.

Colyer's Pit (Milton Street).

The beginnings of white patina in the upper part of the Middle gravel find a parallel in the adjoining pit, on the south side of the hedge, about 80 yards from the Bay. It is known as Colyer's pit (7 on map), and now sometimes as

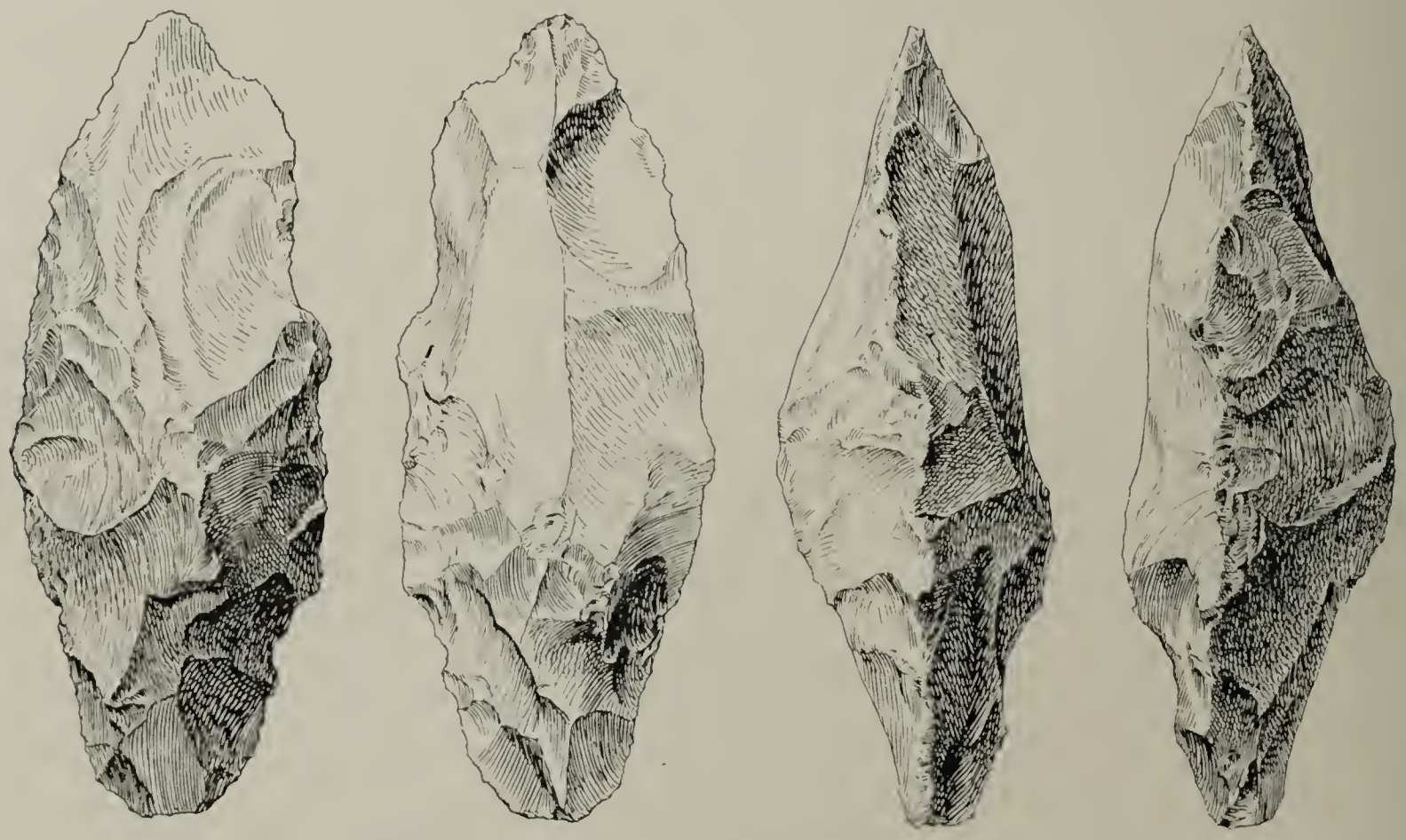


Fig. 16. Four views of spindle-shaped implement, Colyer's pit, Milton Street. (⅓)

Milton Street pit, the section showing below the turf an average thickness of 2 ft. of a stony loam surmounting 7 ft. of gravel, in which can be traced thin lines of sand, and about 4 ft. from its top a chocolate-coloured band, which produced among other worked flints an exceptional implement of spindle-form (fig. 16). This was 6 ft. from the turf, and is stained brown like most of the Drift series. Four views are given to show the edges, which are fairly regular, and the tapering ends, which are somewhat chisel-shaped. On stratigraphical grounds it must be referred to the Chelles horizon, and the patina alone would be practically decisive, but most would admit a certain resemblance to the Thames type of 'pick', a form called after Campigny by continental archaeo-

logists; and the parallel once more suggests that the Campigny phase is pre-neolithic, and corresponds to a certain stage of the Cave period.

Other implements from Colyer's pit excavated under our supervision were: an unpatinated hand-axe, like fig. 2, pl. IX, 6 ft. to 8 ft. from the turf, and another similar but of rougher workmanship; a small example of the type represented by fig. 3, pl. IX, found 6 ft. down, with an incipient patina, and another of the same type with a pale yellow face; also one like fig. 5, pl. IX, white and greyish-yellow patina, with thick butt and very little crust, from the junction of the mould and gravel. No less than eighty flakes with clear bulbs of percussion, but little or no secondary working, were found in this gravel, mostly about 4 ft. to 5 ft. from the turf. They are of the usual character, except that there is a good proportion with white or creamy patina, in various stages of development. This change is generally attributed to atmospheric influences, and exposure on a land surface is essential for the process. That the explanation is valid in the present instance is indicated by the highly patinated implement mentioned above, that was presumably exposed on the surface of the gravel for a considerable period before the loam or soil enveloped it. Though there are reasons for considering the deposit identical with the Middle gravel in Barnfield pit, where incipient white patina was also observed towards the top, it should be mentioned that below the chocolate-coloured seam referred to above was noticed a line of large flints suggesting the basement bed of an independent gravel, but there was otherwise no difference of constitution or colour above and below the deeper coloured seam. A workman who had dug most of the pit stated that the majority of implements he had disposed of were found in the north-west angle at 8 ft. from the turf, that is 4 ft. deep in the gravel below 4 ft. of soil. According to the same workman the Upper loam as seen in the Bay did not reach his pit, but occurred in the orchard 100 yards further west, and it seems evident that the section in Colyer's pit is continuous with that of the Bay in Barnfield pit, except that the Upper loam gives out between the two points. The floor of the former pit has been re-made with unsaleable material, but a trial hole was made and the undisturbed loam reached. It contained the black points of manganese exactly like the Lower loam in Barnfield pit, with which it is no doubt continuous.

Barnfield Pit (continued).

The Upper Loam at Barnfield consists of a sandy loam without evident bedding, except on the southern side of the pit, where it becomes shaly. It is dark brown to chocolate in colour, and has black spots of manganese dioxide like the Lower loam. The loam is persistent but often eroded into furrows, in which the clayey gravel rests. We were unable to find implements at this level,

but were informed by several of the workmen that at its base many white ovates had been met with during the working of the pit.

The Upper Gravel in Barnfield pit consists of a tough flinty clay called by the workmen 'puggy stuff'. It varies in thickness and in the amount of gravel from place to place, and the gravel occurs in nests and pockets. Most of the stones are white-crusted, and are pebbles of flint with about three per cent. of chert, vein-quartz, and quartzite.

A day was spent in endeavouring to find worked flints in this Upper gravel, but with little success. The material would not pass through the sieves, but had to be broken up small and searched both at the top of the promontory left in the south-west of the pit, and also at the foot of the slope on which it was thrown. This site (5 on map) was 14 yards west of our first excavation in the Lower gravel and about 22 ft. above it. A few black flints were found in the soil, and two bleached flakes in the clayey gravel, which was found to contain patches of sand and dove-colour streaks of clay which were free from stones. Under the gravel and resting on the current-bedded sand was found a rudely made implement of elongated pear form, at 6 ft. to 8 ft. from the surface. Further north, on the summit of the west bank, a small opening was made (6 on map) and a few black flints were found showing human work, especially one of conical form (fig. 17) resembling the *grattoir Tarté* or nucleiform scraper, characteristic of the Aurignac Cave period. It was in a dirt-bed, $1\frac{1}{2}$ ft. below the turf, above some 6 in. of dirty yellowish gravel, no doubt part of the Upper gravel. The chalk shelf here is about 65 ft. O.D., and the turf about 109 ft.



Fig. 17. Conical black flint, Barnfield pit. ($\frac{2}{3}$)

As our investigation of the upper series at Barnfield has not at present been successful from the archaeological point of view, we need not apologize for noticing briefly a neighbouring pit, where permission to dig was freely given by the proprietors. Though resting on the Thanet Sand, the Pleistocene deposits here correspond to the upper levels at Barnfield, as is proved by the series of implements recovered.

Globe Pit, Greenhithe.

Globe pit is on the south side of the main road above Greenhithe station, the top of the chalk being 90 ft. to 100 ft. O.D. The section shows gravel, sand, loam, and brick-earth resting on the Thanet Sand and Chalk. The surface on which the deposits rest is uneven, and cut into furrows and channels. Moreover, owing to the dip of the beds the gravels overstep the Thanet Sand and rest

directly upon the Chalk. The surface is therefore not plane, but diversified into channels and hummocks. No sequence is traceable among the deposits resting upon the surface. Gravel, sand, and loam lie in confused masses and in association with brick-earth, whether in the channels or elsewhere. Stratification is absent and current-bedding rare, the whole mass apparently having been dropped from turbulent rushing water and not quietly deposited from a slowly moving stream. Three days were devoted to an examination of

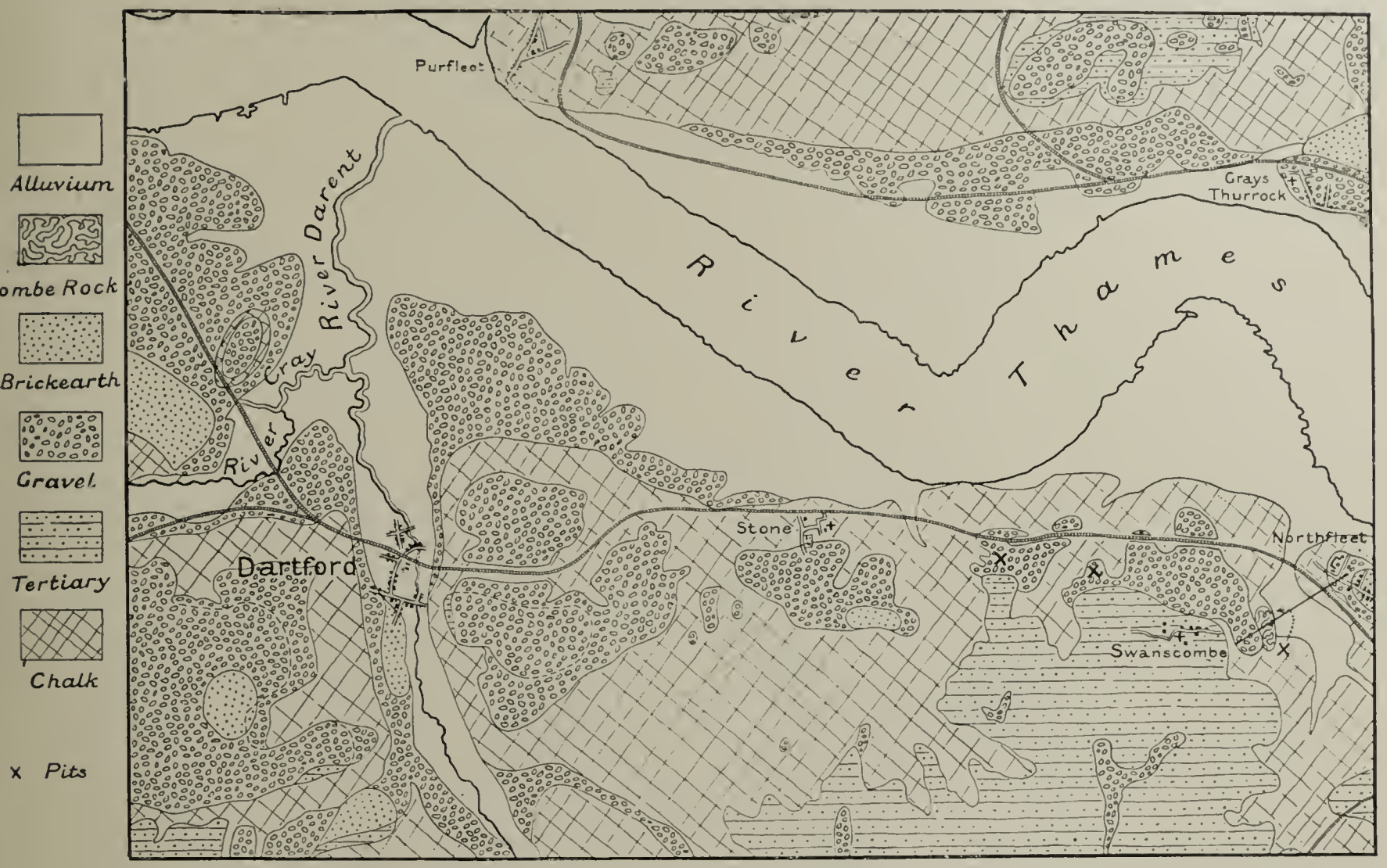


Fig. 18. Geological map (1 in. scale), with excavation-sites (×). Northfleet section is fig. 3.

these deposits, and excavation at various levels produced a few worked flints, but nothing approaching in quality the fine series of over thirty from this pit in the possession of Mr. A. E. Relph, who has generously given us access to them and done all in his power to further our investigations. Though not in every case referable to any particular horizon, his specimens are homogeneous, and, apart from any geological considerations, would be assigned to the period known as late St. Acheul. Most came from the brick-earth, comprising large and small ovate implements generally of a creamy patina; also a few slender pointed hand-axes with a triangular section towards the point, recalling the series from La Micoque, Dordogne, but, unlike that series, of grey colour.

They came from the chalk-rubble (probably Coombe Rock) in the upper part of the brick-earth, where it is channelled, and infilled with later deposits. An exceptional ovate, $8\frac{3}{4}$ in. by 4 in., with glassy spots, was found in brick-earth 10 ft. from the surface; and a twisted ovate, $5\frac{1}{2}$ in. long, is a perfect specimen of chipping, with a very prominent twist in the normal direction, the reverse of the letter S.

Our excavations were chiefly at a point (the westerly cross on fig. 18) where the section showed on the top (1) a loamy gravel, (2) 8 ft. to 12 ft. of brick-earth, (3) $1\frac{1}{2}$ ft. to 2 ft. of gravel, and below (4) Thanet Sand. On the top of the gravel-bed lay a large whitish flake; a heavy yellowish flake was buried 7 ft. in the

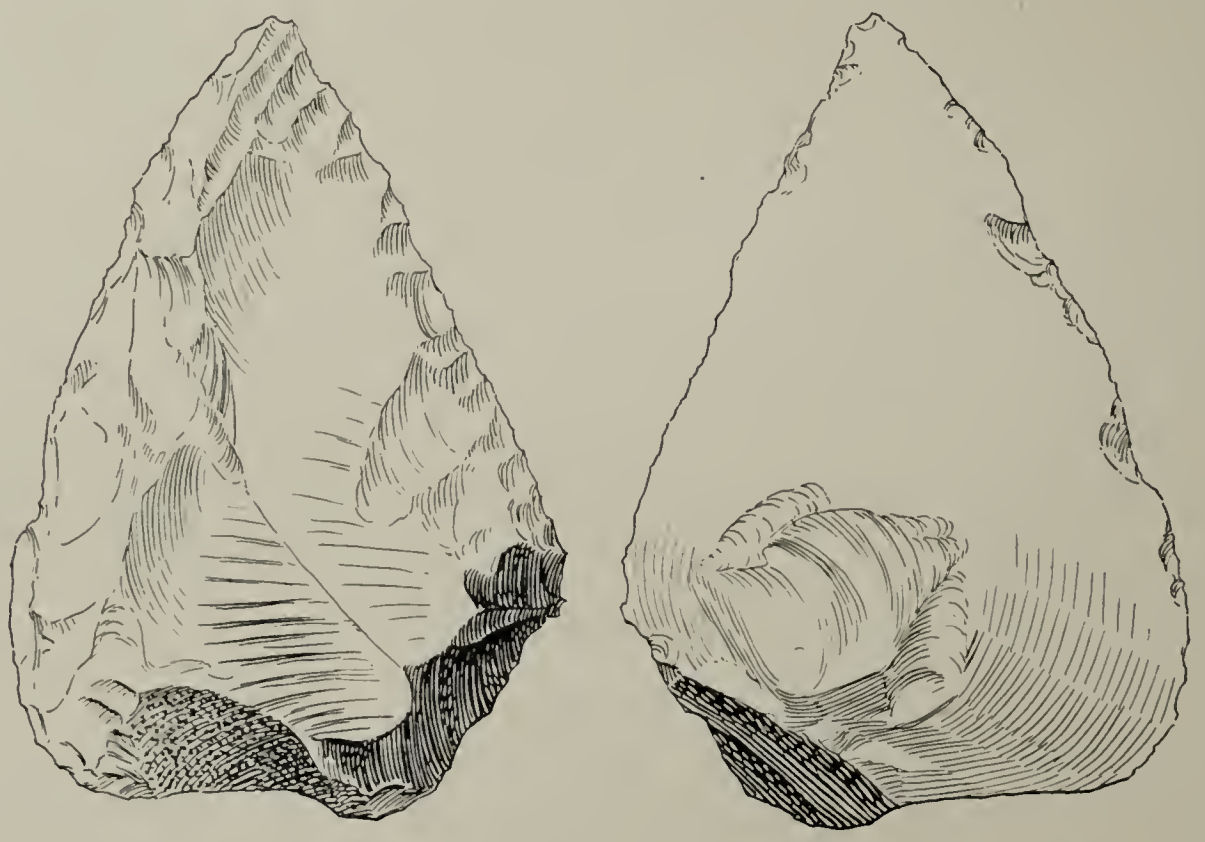


Fig. 19. Side-scraper of Le Moustier type, Globe pit, Greenhithe. ($\frac{2}{3}$)

brick-earth, and a grey flake much scratched came from the loamy gravel. A little further west the gravel produced a few white flakes about 2 ft. from the turf, but the bed was here 12 ft. to 15 ft. thick, overlying Thanet Sand. A fine example of the side-scraper (*racloir*) of Le Moustier form (fig. 19) was purchased just after our work ceased in this pit, and is said to have been found on our site about $2\frac{1}{2}$ ft. from the turf, in the Upper gravel. It is quite unrolled, white and cream-coloured, with large bulb of percussion on the plain face, and a later fracture showing the original black of the flint. There seems good reason, therefore, for regarding the brick-earth here as of late St. Acheul date, and the gravel above it as Le Moustier; but further exploration may lead to a modification of this view, and we have still to determine the relation between the deposits of the Globe and Barnfield pits.

Some hours were spent at Northfleet in re-examining the irregular mass of rubbly chalk, sand, and loam which partly fills the valley cut through the deposits of the higher terrace, and also through the solid Chalk on which these rest. This deposit resembles the Coombe Rock of Sussex, which, as demonstrated by Mr. Clement Reid, arose from the rapid thawing of snow and frozen soil, and the consequent mud-stream which flowed down the hill slopes.

The section showed deep channels, varying in depth and width from a few inches to many feet. These were hollowed in the Chalk, and afterwards filled with drift covered with even-bedded layers of gravel and sand. The drift contained in places an abundance of tusks. One was exposed, and found to measure 6½ ft. long and 16 in. in circumference. It was curved nearly into a circle, but the ends did not meet as the curve was in two planes. It belonged to *Elephas primigenius* (mammoth). In addition to this were many other parts of tusks and bones, but all too fragile to extract. The locality has long been known as productive of large flints resembling the Levallois flakes of Le Moustier period. They are remarkably uniform in style, and showed gradations of colour from black through grey and bluish-white to white or cream-colour; and a description of the working-floor in one corner of this pit has already been published in *Archaeologia* (lxii. 515). Some precise information may be derived from a comparison of the four pits already described—Barnfield and Colyer's pits at Swanscombe, Globe pit at Greenhithe, and the Southfleet pit (Baker's Hole) at Northfleet. The sections show a difference in the heights above Ordnance Datum at which the deposits rest upon the solid formations; also in the character and material of the deposits. As regards height above O.D. the first three pits agree fairly well, the solid rock reaching about 90 ft. at Barnfield and Colyer's pits, and 90 ft. to 100 ft. at Globe pit. The base of the deposits in Southfleet pit is some 40 ft. below these, namely, about 50 ft. O.D. The state of the deposits is also significant. In Barnfield and Colyer's pits they are undisturbed, showing even or current-bedding, whereas in the Globe and Southfleet pits they are much disturbed owing to the tumultuous waters of the period in which they accumulated. The constituent materials in Barnfield and Colyer's pits are gravel and sand, with marl and loam; in the Globe and Southfleet pits disturbed rubble, brick-earth, and irregular gravel.

From these data certain conclusions can readily be drawn. The terrace-gravels of Barnfield and Colyer's pits were mainly laid down in river-waters during a long period of deposition, the land slowly sinking beneath a river which at one time brought down large washes of gravel, and at another the finest mud and sand. There was, however, no violent irruption of flood waters. The history of the other two pits is different. There was no slow accumulation, but sudden and powerful rushes of water sweeping before them every obstacle

on the hill-sides and dropping their burden as the speed slackened. The resulting deposits are not such as are due to normal wear and tear of the surface, but rather resemble those of arctic regions or lands just beyond the arctic zone. In Siberia such masses of superficial wash are accumulated at each thaw. The split and shattered rock and base soils, unprotected by vegetable growth, are permeated with frozen water and snow. When the thaw occurs the whole mass slides bodily downhill, filling the valleys and covering all previous deposits. A deposit similar to that of the Globe and Southfleet pits overlies wide areas of the south of England, and was called by Dr. Mantell 'Coombe Rock' or the 'Elephant-bed'. It is well exposed at Black Rock, Brighton, and there contains a similar assemblage of animal remains, chiefly mammoth.

So far the discussion of Barnfield pit has proceeded on local lines. Its geological and archaeological features have been examined in detail without reference to any site beyond the immediate neighbourhood. This concentration has been intentional, as the introduction of foreign evidence into the actual description of the pit and its products might give rise to a suspicion that the evidence had been twisted into agreement with supposed parallels elsewhere. To avoid misunderstanding the facts have as far as possible been left to tell their own tale, and any deductions from them already made can be substantiated by what other investigators in the Thames area have brought to light. The field has always been an attractive one, and reference should here be made to the well-known publications[1] of General Pitt-Rivers, Allen Brown, Worthington Smith, H. B. Woodward, Spurrell, and Whitaker, while more recently Messrs. Hinton, Kennard, Leach, and Chandler have, with others, attempted from various standpoints to unravel the secret of the Lower Thames.[2] If this report were of a more general character it would borrow much from the above authorities, with ready acknowledgement of the debt; but our work has not been extensive enough to justify an analysis, much less a revision, of previous papers, and we are content in the present instance to add a few facts and fewer theories to the common store.

[1] Pitt-Rivers, *Quarterly Journal of the Geological Society*, xxviii. 449; J. Allen Brown, *Palaeolithic Man in North-West Middlesex*; Worthington G. Smith, *Man, the Primeval Savage*; F. C. J. Spurrell, *Report of West Kent Nat. Hist. Soc.*, 1886; *Archaeological Journal*, xlii. 269; *Proceedings of Geol. Assoc.*, xi. 223; H. B. Woodward, *Geology of the London District* (H.M. Geological Survey Memoir, 1909); W. Whitaker, *Geology of London* (H.M. Geological Survey Memoir, 1889).

[2] M. A. C. Hinton and A. S. Kennard, *Proc. Geol. Assoc.*, xix. 76; *Essex Naturalist*, xi. 366 (with bibliography), xv. 66; R. H. Chandler and A. L. Leach, *Proc. Geol. Assoc.*, xxiii. 102.

Palaeolithic Succession in the Somme Valley

For several years past research on these lines has been actively carried on in classic territory by Prof. Commont, of Amiens, whose many papers are scattered in memoirs of various societies, and are not generally accessible in this country. We owe much to his inspiration and example, and take this opportunity of presenting in English a piece of his work that is closely parallel to what has been discovered at Swanscombe. The analogy was forced upon us at various stages of the work, and it is hoped that the publication in parallel columns of two sites about 120 miles apart will give satisfaction and encouragement to both sides.

Flint implements from the Thames and Somme have long been recognized as analogous, and attention may now be directed to the Carpentier pit at Abbeville, which has yielded to Prof. Commont[1] remains of man and a fauna that throw a good deal of light on Swanscombe. The pit averages 100 ft. above the sea, and corresponds to the third terrace at St. Acheul, fourteen miles further up the river, where the terrace is still 133 ft. (40 metres) above the sunk channel of the Somme, and reaches 176 ft. O.D. The following table, compiled from Prof. Commont's details, shows the variation in the height of the Somme terraces above the level of the sea, and it will be noticed that in France the terraces are numbered from below, not from above as generally in England:

Terraces of the River Somme

Average heights above the lowest channel and above the sea, with distances of the sites from the sea.

Horizons in ascending order.	Above lowest channel.	At Amiens, St. Acheul (29 miles).	At Amiens, Montières (25 miles).	At Abbeville, 15 miles from sea.
Sunk channel	—	13 metres 43 ft. O.D.	10 metres 33 ft. O.D.	−15 metres −50 ft. O.D.
1st Terrace	10 metres or 33 ft.	76 ft. O.D.	66 ft. O.D.	−17 ft. O.D.
2nd Terrace	30 metres or 100 ft.	143 ft. O.D.	133 ft. O.D.	50 ft. O.D.
3rd Terrace	40 metres or 133 ft.	176 ft. O.D.	166 ft. O.D.	83 ft. O.D.
4th Terrace	55 metres or 183 ft.	226 ft. O.D.	216 ft. O.D.	133 ft. O.D.

[1] *Les gisements paléolithiques d'Abbeville* (Lille, 1910).

The Carpentier pit at the Porte du Bois is on the same level as the better-known sites of Moulin Quignon and Champ de Mars, which recall the days of Boucher de Perthes. The formation of this third terrace is referred by Prof. Commont to the human period before Chelles, the latter having produced the second terrace below; and the annexed section (fig. 20) represents part of that exposed at the Carpentier pit, where the stratification is often disturbed by deep pipes. The original letters are retained to distinguish the strata, as they belong to the Professor's system for the north of France.

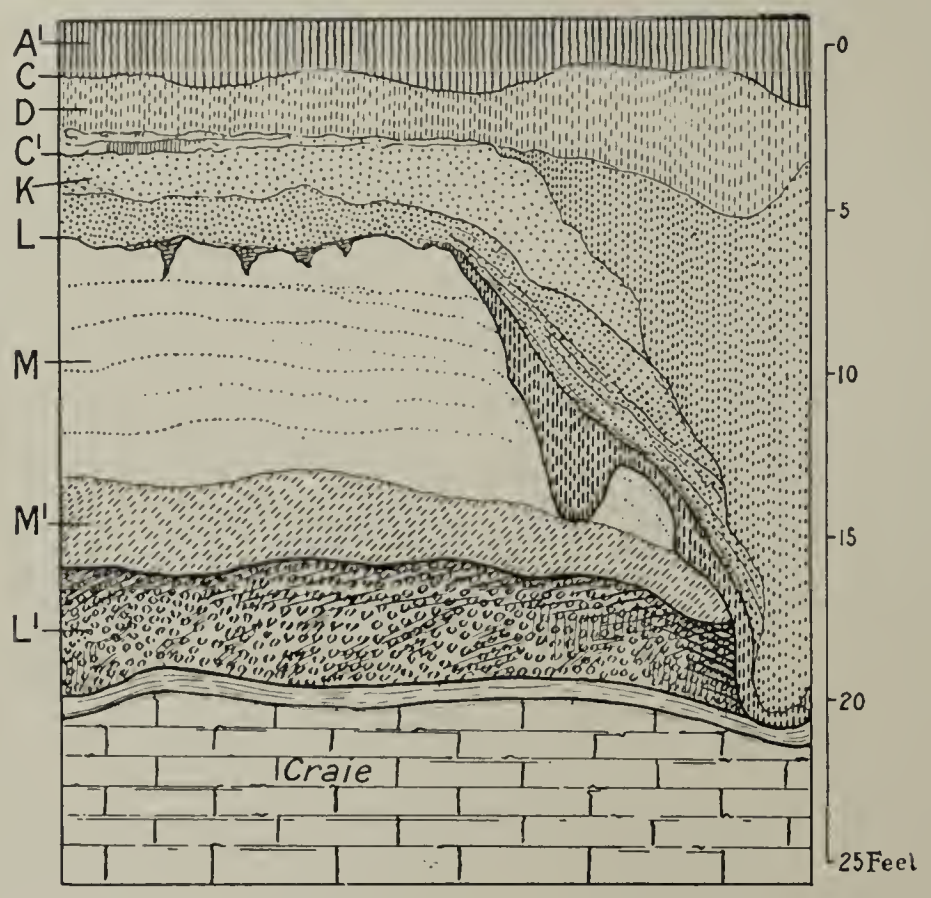


Fig. 20. Section in Carpentier pit, Abbeville, Dépt. Somme.

A¹ *Limon de lavage.* Black sandy soil attributed to the neolithic period.
C *Cailloutis.* Thin seam of splintered white flints.
D *Limon fendillé.* Red sandy loam, laminated with vertical and horizontal fracture, used as foundry sand: period St. Acheul II.
C¹ *Cailloutis.* Seam of flints, period St. Acheul I (other beds of loam wanting here).
K *Sables blancs ou jaunâtres.* Light-coloured and current-bedded sands assigned to Chelles period.
L *Graviers fluviatiles.* River gravel of rolled flints.
M *Marne blanche à dragées.* Marl with calcareous concretions and bones.
M¹ *Glaise verdâtre.* Greenish sandy clay with freshwater shells.
L¹ *Gros graviers.* Coarse red gravel, stones hardly rolled.

Though the deposits attained a thickness of 20 ft., the faunistic remains were practically confined to the white marl M, and the abundance of shells in the corresponding deposit at Swanscombe has already been noticed. Prof. Commont deals in detail with the elephant teeth from this horizon, and remarks that those with black patina are not of *El. meridionalis*, but of *El. antiquus*, Pohlig's *El. trogontherii*. The latter name is applied to a group intermediate between *El. meridionalis* and *primigenius*, and there has been some confusion between this group and the mammoth. The mammoth teeth with separated plates, found in association with *El. antiquus* and *trogontherii*, are to be distinguished from those with close plates, belonging to the upper Pleistocene, and it is interesting to note that in this same marl bed M was found a tusk more curved than *El. antiquus*, but unfortunately too fragile to preserve. Exactly the same was the case at Swanscombe (fig. 7).

The rhinoceros was represented by ninety molars, belonging to *Rh. aff. leptorhinus*, *Etruscus* and *Mercki* (*leptorhinus*); besides hippopotamus, *Sus scrofa*, *Cervus solilhacus*, (*Dama*) *somonensis*, *C. elaphus*, *capreolus*; *Bos priscus*, *Equus stenonis*, *caballus*; *Machairodus latidens*, weasel, hyena (coprolites), hare, and bird. Shells were frequent in the white clayey sand just above the sharp sand K, that is, in the top of the current-bedded sand, or at the bottom of the St. Acheul I gravel. The land-species named are:

Helix (*Vallonia*) *pulchella* and *costata*.
Helix (*Trichia*) *Commonti*.
Helix (*Xerophila*) sp.
Cochlicopa (*Zua*) *lubrica*.
Pupa (*Pupilla*) *muscorum*.
Pupa (*Isthmia*) *minutissima*.
Pupa (*Vertigo*) *antivertigo*.
Pupa (*Vertigo*) *pygmaea*.
Clausilia (*Kusmicia*) *pumila*.
Succinea (*Lucena*) *oblonga*.
Carychium minimum.

Aquatic species:

Lymnaea (*Lymnophysa*) *truncatula*.
Planorbis (*Gyrorbis*) *leucostoma*.
Valvata sp.

Another parcel contained many *Belgrandia*, and in the greenish sands M' at the base of the white marl (corresponding to our Lower loam) were found abundant freshwater bivalves:

Valvata cristata, var. *spirorbis*.
Valvata piscinalis.
Pisidium amnicum, var. *striolatum* (?).

Period.	Strata at Abbeville.	Implements, Carpentier pit.	Implements, Barnfield pit.	Strata at Swanscombe.
Neolithic	Hill-wash (black sandy soil)	Neolithic scrapers	Either neolithic or Cave-period flints	Hill-wash (black sandy soil)
	Splintered white flints	. . . .	. . . .	Bleached clayey gravel
St. Acheul II	Laminated loam	One white implement	. . . . [Reputed horizon of white implements]	Laminated loam
St. Acheul I	Flint seam, the only prolific stratum	All ovate implements, none with thick butt. Unpatinated, or with yellow or reddish patina: unrolled, rarely twisted, and lustred by sand	Chelles types	Middle gravel replaced laterally in part of the pit by
Chelles	Current-bedded sand, gravel of rolled flints	Chelles types	Chelles types	Current-bedded sand on thin seam of gravel
	White marl	. . . . Barren, fauna resembling pliocene	. . . .	White marl with shells
	Greenish loam		. . . .	Greenish loam
	Coarse red gravel	. . . .	Flakes, *Elephas antiquus* No hand-axes.	Coarse red gravel

Conclusions.

The relation of man to the Glacial epoch is a subject of great interest, and one about which much has been written both at home and abroad. We are fortunate in possessing definite evidence of this relationship in the near neighbourhood of Swanscombe. It is the chalky boulder clay at Hornchurch in Essex,[1] upon which rests undisturbed Thames gravel of early Palaeolithic Age. To appreciate the significance of this evidence it is necessary to consider briefly the probable history of the Thames during Pleistocene times.

The glacial period was not one of continuous arctic conditions, but was divided into alternating periods of greater and less severity. In Northern Europe there may have been no truly warm interglacial times, but in our latitude the maximum effects of the cold were not experienced. Here, in the zone of critical temperature, was the borderland of the glacial ice-sheets. Snow, however, must have accumulated on the hills of the Weald, and these hills were far higher than the present Wealden heights, and prolonged frost held the land in its grip. During ensuing thaws the water, stored in the form of snow, and perhaps representing many years of precipitation, was suddenly liberated. Its

[1] T. V. Holmes in *Quart. Journ. Geol. Soc.*, xlviii. 365.

downrush towards the lowlands swept bare the waste of the land derived from the rocks by long-continued frost. This would include masses of flint from the Chalk, and chert from the Lower Greensand hill ranges of the Weald. The waters would flow as streams moving with great velocity through gaps in the chalk hills, their course being turned and their progress retarded by the flatter land composed of Tertiary sands. The waters would drop their burden of detritus as their velocity decreased, but would flow on to the lowest part of the main valley. As a consequence of the sudden liberation of many years precipitation the former river-valleys could not retain the waters, which would spread out in all directions and deposit their freight of rock-waste as large fans over the lowlands. There would thus be produced a series of fans spreading out from the gaps in the chalk escarpment as far west as the last gap at Farnham, beyond which the chalky detritus would be swept down and deposited as marginal sheets at the foot of the chalk hills. North of the Thames volumes of water, charged with débris from the boulder clay, simultaneously poured through gaps in the Chiltern Hills and deposited deltas and fans of gravel and sand. The two groups of deposits met along a general west and east line, and were carried tumultuously towards the sea. The evidence of such phenomena is partially obscured by remnants of still earlier drainage systems, but several lines of argument converge in support of the general probability of the explanation given. The composition of the gravels shows the source whence they were derived, and the gravels can be divided by their constituent rocks into two main classes. The first is characterized by the presence, often in large quantities, of quartzite of various colours and textures, and contains in addition other rock fragments derived from localities lying to the north, some far removed from the Thames basin. The constituents of the second group, on the other hand, are derived from the Chalk and Lower Greensand hills of the Weald. By tracing these rocks it is possible to refer the gravels to their source and point to the direction of the water-flow which deposited them. By observation in the field it has been ascertained that the two groups meet on the lowest ground of an elongated tract between Reading and Swanscombe.

In most glaciated districts the gravels lie on graded slopes on the margin of the ice, and have been variously described as Schotter gravels, outwash fans, outwash aprons, and valley train gravels. It is not improbable that most of the gravels formerly described as hill or plateau gravel were deposited during the advance and retreat of the glaciers of the period of the maximum glaciation, represented in Eastern England by the chalky boulder clay. After they had been deposited an uplift of the land rejuvenated the rivers, which proceeded to deepen their valleys. The rainfall was probably far heavier than at present, and in consequence the power of erosion possessed by the

river enabled it to cut down its valley rapidly for a depth of 80 ft., when it reached its base level of erosion. A period of subsidence followed, during which steady and regular deposition of gravel, loam, and sand took place; but although the river was unable to erode its channel, it swung laterally in wide bends and notched the bank against which it impinged, and instead of flowing quickly and nearly straight to the sea it followed a meandering course. At one part of its course it deposited gravel upon the chalky boulder clay at an altitude of about 100 ft. above Ordnance Datum. This is seen in fig. 21, near Hornchurch in Essex. The gravel in question forms part of a terrace which maintains a uniform height above sea-level between Gravesend and the longitude of Staines (fig. 2), and Barnfield pit is in gravel of this terrace. Hence we know that man had made his appearance and was already an artisan of no

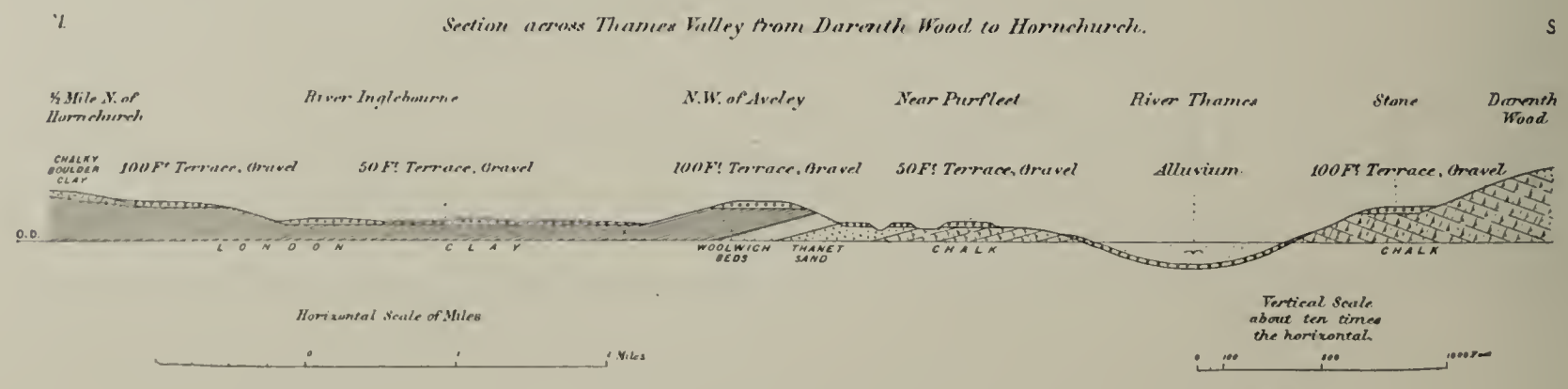


Fig. 21. Section across the lower Thames Valley, showing terraces and Boulder clay.

mean skill. It is possible that he existed at even earlier periods; indeed, by many authorities it is considered certain that he existed previous to the time when the chalky boulder clay was deposited, but sufficient evidence has not yet been accumulated for this view to gain general acceptance. From the remains of certain mammals found in association with palaeolithic implements, it is clear that this part of Europe was then enjoying a warm temperate climate which continued for a long period. The length of the period is indicated by the thickness of the deposits at Barnfield pit, but a gradual change of climate was accompanied by, and possibly resulted from, another elevation of the land on the west. From fig. 21 we see that erosion recommenced. The river, however, had lost much of its erosive power, owing probably to its diminished volume. After it had lowered its valley some 40 ft. it again reached its limit of downcutting, and another period of deposition or subsidence ensued. Meanwhile man had altered his style of flint working, and had attained more skill and mastery over his material. The beautifully fashioned ovate implements of St. Acheul type are technically far in advance of the rough hand-axes of the Chelles period; but having reached this stage of perfection, human culture seems to have received a check. Indeed, it is doubtful if man remained in his old habitat. From the

character of the next style of implement and the manual dexterity involved, it would seem that another race of men were enabled either to drive out the former occupants of the land or to possess themselves of the land which their predecessors had found uninhabitable by reason of an exceedingly rigorous climate. We know that there was a renewal of cold conditions by the appearance of a fauna adapted to a cold climate, and there is other evidence of the near approach of another arctic period. The group of deposits formed at this time can have been the result only of frost, snow, and rapid thaw, and in addition there is the evidence of the contorted upper layers of gravel in southern England. This striking phenomenon is observable in gravels lying at various heights above O.D. Thus the plateau-gravels at 400, 300, and 200 ft. show it. In the terrace-gravels at 100 and 50 ft. it is also very frequently observed, but the lower gravels are less affected. Hence, after the deposition at various periods of the several spreads of gravel, such conditions ensued as led to the freezing of their upper layers; and the comparative rarity of the phenomena in gravels deposited after the 50 ft. terrace-gravels were laid down, points to the period of cold being immediately after the formation of the 50 ft. terrace, and thus accords with the evidence derived from the position of the Coombe Rock.

At Globe pit, Greenhithe, and Baker's Hole, Northfleet, such deposits are found. On the latter site a torrent of sludge from the chalk hills overwhelmed a settlement and flint factory where Le Moustier man had lived. The valley overwhelmed by this flood had been cut through the 100 ft. terrace when the river was rejuvenated as a result of the last uplift. During the time that it had taken the river to erode its channel 40 ft. deep the men who made St. Acheul and Le Moustier implements had lived near its margin. The torrential waters swept bare the slopes above it, and deposited their freight of tusks, bones, and teeth on the lower ground in tumbled masses which show no signs of stratification. This advance of the cold appears to have taken place at, or just after, the time when the river had again reached its base level and had cut its 50 ft. terrace (figs. 2, 21). Thus we see that the deposits formed during the time of the 100 ft. and 50 ft. terraces both contain mammalian remains, whereas the plateau or glacial-outwash gravels are unfossiliferous, an interesting confirmation of the glacial severity of the climate when the latter gravels were formed, and of its amelioration during the formation of the terraces. The evidence derived from the Thames valley of the late glacial period of Chelles, St. Acheul, and Le Moustier man is substantiated by that obtained from other localities. We need only mention the familiar Biddenham gravels in Bedfordshire, which are later than the chalky boulder clay and contain Chelles implements; the St. Acheul deposit at Hoxne, and the Warren Hill deposits of Suffolk, all of which date after the chalky boulder clay.

The history of palaeolithic man subsequent to the period of Le Moustier is outside the scope of the present communication, but recent research points to a well-developed Cave period in England, not only in the palaeozoic limestone area, but also on the chalk formation where caves were not available for shelter. Nevertheless, man lived and left behind traces of his civilization in implements of imperishable flint, now lying near the surface and mingled with relics of all subsequent periods.

It only remains to add that the exploration of gravel-pits in the Swanscombe district will be continued this year under the same auspices, and that type-series of the implements and flakes already found, together with diagrams and photographs of the deposits, will be exhibited both at the British Museum and at the Museum of Practical Geology, Jermyn Street.

V.—*The Weapons of the Iberians.* *By* Horace Sandars, *Esq., F.S.A.*

Read 20th February, 1913.

It would be foreign to the purpose of my paper to enter upon the much debated and still unsolved question as to who were the Iberians and from whence they came, nor, indeed, has that question any direct bearing upon the subject-matter with which I deal. A few words as to the state of the country during the period under review, the organization of the peoples who inhabited it, their physical and moral conditions, and the influence of their surroundings upon their practice and methods in war and in strife may, however, not be out of place.

The period, in itself, is well defined and comprises the five centuries next preceding the Christian era. We are fortunate, moreover, in that the period comes within historical purview, inasmuch as the Iberian Peninsula is mentioned by Hecataeus of Miletus about 500 B.C. The principal events also which subsequently took place in the country have been recorded and described by a long line of accredited historians, such as Herodotus, Polybius, Titus Livius, Strabo, and Pliny the Elder, who deal with the whole period now under review. Many of the circumstances thus recorded had a lasting effect upon the intercourse between the different peoples who dwelt there and their relations with other countries, upon the customs and idiosyncrasies of its inhabitants and the political changes which, in many instances, brought about a recasting of the divisions of their territories.

Some of the events, such for instance as the intrusion of conquering races and of colonists from other nations, have not been without influence upon the weapons of the Iberians and the use they made of them, in the course of the struggles and contests in which they were engaged, almost uninterruptedly, during the last five centuries B.C.

If historical records are to be relied upon, the first of the nations of antiquity to enter into relations with the Iberians were the Phoenicians, who at the end of the second or the beginning of the first millennium B.C. sailed past the Pillars of Hercules and established a colony at Cadiz, which, during several centuries, remained the base for their operations in the western Mediterranean

and a centre from which they traded with the inhabitants of the rich and prosperous region stretching north to the confines of the present-day Andalucia. That they sailed still further west is more than probable, while there can be but little doubt that they worked their way round the east coast of the Peninsula and dealt extensively in metals with the exploiters of the rich deposits of silver-bearing ores which stretch from the south-east corner of Iberia to the northern boundary of modern Cartagena. But the Phoenicians were essentially pacific merchants and traders, and not, if history in this connexion is to be relied upon, the organizers of military expeditions. Nor were they *conquistadores* in the usual sense of the term. They probably penetrated but short distances inland, and, so far as we know at present, their presence on the fringe of a small stretch, the south-eastern portion of the Peninsula, left no trace on the inhabitants or in the country itself. So little is known in regard to the weapons they employed in warfare that one could not expect to find traces of them in Spain. Indeed, the direct evidence of the presence of the Phoenicians in that country, either as colonists or as merchants, is so rare that, were it not for the unquestionable historical references to their presence in Iberia, one would hardly have been aware that they had settlements in that country or that they had ever traded there.

Extraneous influences began in reality to make themselves felt within the Peninsula towards the middle of the sixth century B.C., when the power of Tyre was on the wane and Phoenicia had been reduced to submission through the capture of that city by Nebuchadnezzar in 573 B.C.

Such Phoenician colonies or rather trading stations as there may then have been on the south and south-east coast of Iberia passed into the hands of their offspring, the Carthaginians, who under the name of Libyo-Phoenicians (1)[1] continued to occupy them until they were finally driven out of the country by the Romans at the end of the third century B.C. There is no evidence to prove that the Libyo-Phoenicians penetrated much further than their predecessors into the Peninsula, although it is probable that they extended their trading relations well into the interior of the country. But if their predecessors the Phoenicians left little or no trace of their presence in the Iberian Peninsula it was otherwise with the Libyo-Phoenicians, as recent investigations have shown. The interesting discoveries of the late Sñr. Roman in the island of Ibiza, which are being so intelligently followed up by Sñr. Vives, and the not less important investigations of M. Louis Siret at Villaricos, point to Libyo-Phoenician occupation during long periods, while the numerous discoveries of Punic remains at Cadiz have long been known. The beautiful bronze oenochoe and dish discovered by Mr. George Bonsor in a tumulus in Los Alcores, near Carmona (2) in the Province of Sevilla,

[1] The numbers in brackets refer to the bibliographical references at the end of the paper.

which Mr. J. Déchelette compares (3) with the oenochoe found in the Regulini-Galassi tomb at Cervetri and which he assigns to the seventh century B.C., as well as the ivory tablets with figures of warriors and animals of Oriental type, also found by Mr. Bonsor, show that Libyo-Phoenician or possibly Phoenician traders trafficked as far inland as the centre of Andalucia. Traces of the influence of Libyo-Phoenician or Punic intercourse can be discerned in the arts and possibly in the religion of the Iberians with whom they came in contact (4), but here again there is no direct evidence to show what arms the intruders made use of, nor whether such weapons as they may have employed had any influence on the weapons of the Iberians.

The sixth century before the Christian era witnessed another and distinct intrusion into the territory of the Iberians, although in this case, too, the penetration did not extend beyond a narrow band along the north-east coast of the Peninsula. I refer to the establishment of the Greek colonies and trading stations which followed upon the foundation of Massilia in about 550 B.C., and in course of time stretched from Rhoda and Emporiae in the north to the Artemisium promontory in the middle east, and perhaps beyond, until it was confronted with the Libyo-Phoenician stations and settlements in the south-east of the Peninsula. The substitution of the Libyo-Phoenicians or Carthaginians for the Phoenicians in the south and south-east, and the intrusion of the Greeks on the north-east and east coasts of the Peninsula, were practically contemporaneous, and their occupation of such parts of Iberian territory as they were able to control ran *pari passu* through the following three centuries, and, in fact, until the Roman invasion, towards the latter part of the third century B.C., put an end to the influence of both. There are, however, certain marked differences in the effects upon the country of the intrusions of the two great nations to which I have referred. The Libyo-Phoenicians grew in influence as Carthage grew in power, while Greek influence declined in consequence of foreign invasions and internal dissensions at home; with the result that the Carthaginians undertook a series of successful campaigns in the interior of the country in the third century, under such noted leaders as Hasdrubal and Hannibal, while the sphere of action of the Greek colonies on the east coast of the Iberian Peninsula became more and more restricted.

But, again, in the case of the Libyo-Phoenicians or Carthaginians, as in that of the Phoenicians, no trace has been left in the Peninsula of the arms they employed, nor had those arms any influence, so far as I am aware, upon the weapons of the Iberians. It was otherwise with the Greeks, who influenced the military equipment of the Iberians and endowed them with the most useful of all their weapons, viz. the *kopis* or *machaira*, a short sabre usually known as the *falcata* by reason of its general resemblance in form to a sickle.

There was, moreover, a further intrusion which comes more closely within the period with which I deal, and which had still greater influence on the destiny of the country and on the weapons used by the inhabitants than any of those already referred to, by reason of its deeper penetration and its lasting effects upon the different peoples concerned. I refer to the first invasion of the Celts or Gauls, which took place in all probability towards the middle of the fifth century B.C., since their presence in the Peninsula is not recorded in the so-called *Periplus* of Himilcon, which was probably written about 500 B.C., whereas Herodotus, who wrote his history between the years 445 and 432 B.C., distinctly mentions the Celts as being the most western people of Europe except the Cynetes (Κυνήσιοι, Κύνητες) (5), who inhabited the lower south-western portion of the Iberian Peninsula. The Celts had this advantage over both the other intruders to whom I have referred in that they came by land from their own country in the north (although their first invasion may have taken place by sea at some point on the north-west coast of the Peninsula) (6), and this enabled them to invade the foreign land in larger numbers and to render themselves more rapidly masters of the country. They drove a wedge, so to say, right down to the south of the Peninsula, the broader base being at the Pyrenees, while the centre comprised that part of central Spain where the rough and rugged mountains interspersed with fertile plains most resembled the land they came from. Here their mastery of, and intermingling with, the native races led to the formation of a separate clan under the name of the Celtiberians, whose fighting qualities and unshakable resistance to the domination of others became proverbial and culminated in the celebrated siege and the self-destruction of the heroic Numantia. There was, moreover, a further incursion of the Gauls into the north-eastern part of the Peninsula, which took place, in all probability, during the first half of the third century B.C., and which may have been contemporaneous with the Gaulish expedition to Delphi (7). Incontestable traces of this later intrusion remain in the weapons found in the necropolis at Cabrera de Mátaro, about 15 miles to the north-east of Barcelona, as will be shown presently.

The last of the intrusions within the period covered by my study was that of the Romans, which took place towards the end of the third century B.C. and led, after more than two centuries of continuous struggle against the dogged resistance of the majority of the Iberian States, to the pacification of the Peninsula at the end of the first century preceding our era, and to a further four centuries of Roman domination.

At the time of the first Celtic invasion, and for some centuries afterwards, the Iberian Peninsula was divided into a number of states, some of which had attained the status and importance of kingdoms, while others were merely agglomerations of affinitive tribes. They varied greatly in importance and

ethnological elements and in the characteristics and customs of their inhabitants; while jealousy and distrust of their neighbours prevented a combination to repel the invaders of their common country.

The states were ruled by kings, princes, or military chieftains, and in some cases, as for instance in those of the Saguntini and Volciani, by a sovereign Assembly formed by the nobles of the tribes (8).

The principal kingdom of the Peninsula was that of the Turdetani, which comprised the gentle and fertile valleys of the Baetis (Guadalquivir) and the prolific plains which surrounded it, together with part of the Mons Marianus (Sierra Morena), so rich in minerals. The Turdetani were a cultivated people (9) who lived in a favoured land, the Tartessus of the ancients, and had long been in contact with the various peoples who sought the products of their soil and brought them in return the benefits of their own culture. Indeed, so far were they from being a warlike race, that they had to employ Celtiberian mercenaries to defend their territory at the time of the Roman invasion of their country (10). To the north of Turdetania lay the Oretani, Iberians, whose capital (Castulo) was the key that opened the passage from the north and east to the rich lands of the Turdetani, and whose country was the field of some of the most stubbornly contested battles between the Carthaginians and the Romans during the second Punic war.

To the west of the Turdetani were the Celtici, in the south-west corner of the Peninsula, who may have been the earlier intruders by sea from Gaul, or who may have taken part in the main Celtic invasion of the middle of the fifth century B.C. and have remained unabsorbed by the neighbouring peoples.

To the north of the Celtici lay the Lusitani, a powerful race whose warlike qualities and adventurous spirit have been repeatedly chronicled by the historians of the period I am dealing with; while to the north of the Lusitani and bordering upon the Cantabrian Sea was Gallaecia, inhabited by the indomitable tribes of the Gallaeci, the Astures, the Cantabri, and the Autrigones. It was within this north-western portion of the Peninsula that the Romans carried out their last campaign for the subjugation of Iberia. They succeeded in curbing, but never in conquering, those hardy and determined mountaineers. To the east of the Galicians and immediately to the south of the Pyrenees were the Vascones, the Ilergetes, the Lacetani, and the Ausetani, while following along the east and south-east coasts, until they again bordered on the country of the Turdetani, were the Cosetani, the Ilercaones, Edetani, Contestani, Bastitani, and the Turduli, in the order named. These were all Iberian tribes. Many of them came into direct contact with Greek and Punic settlements, but while doing so they never lost their independence or individuality. In the centre of the Peninsula, as I have already pointed out, was Celtiberia, a name given by the



Fig. 1. Map of Iberia, showing political and ethnological subdivisions.

Romans to the country, inhabited by an agglomeration of different peoples, into which the Celts had penetrated, but where the Iberian political organization, language, customs, and religious observances continued to prevail. The tribes which formed this agglomeration and whose names resound in history were the Arevaci, whose chief town was Numantia, and of whom the Pelendones were but a subdivision (11), the Berones, the Lusones, and the Belli, while the country they occupied 'comprised within its limits the present-day provinces of Burgos, Soria, Guadalajara, Cuenca, and Albacete, together with the eastern half of the provinces of Palencia and Segovia and the western portion of the province of Saragossa' (11).

The Celtiberians were surrounded by the Vettones, Vaccaei, Cantabri, and Edetani on the west, north, and east, and by the Bastitani and Oretani on the south (see map of Iberia, p. 210). They were the most martial of the Iberians, and it was with them that the Romans were almost continually at war, either in repelling their attacks or in endeavouring to subject the unruly tribes to the power of Rome. Their exploits and weapons are frequently referred to and described in history, while their coinage, as I will presently show, affords very valuable evidence for the weapons they employed in their century-long struggle for freedom from a foreign yoke.

It is but natural that the ethnological features and the physical and moral characteristics of the inhabitants should differ considerably in a country under such diverse influences, where the climatic and topographical conditions were so varied. But the description of their qualities and faults culled from many authors may be applied to the inhabitants of Iberia as a whole, just as when I speak of the 'weapons of the Iberians' I use the term in a generic sense and as meaning the arms of offence and defence in general use by the inhabitants of the Peninsula. I should perhaps point out that, with the exception of Polybius, the authors who dealt most extensively with the Iberians and their characteristics, such as Posidonius, Diodorus, and Strabo, wrote in the latter part of the period of which this paper treats, while Pliny the Elder, who often makes mention of the Iberians and of their country, wrote his well-known encyclopaedia some years after its close. They were consequently not contemporary with the events with which they deal.

The Iberians were a courageous and pertinacious people (12), 'more capable than any other of repairing the disasters caused by war, not only by reason of the topographical configuration of their country, but also as a consequence of the character of its inhabitants, and this alone could explain how it could come to pass that this province (Hispania), the first on the continent where the Romans carried their arms, was the last to be subjugated, and then only after a struggle of more than two centuries.' They were more industrious and

resolute than the Gauls. They despised death, and were credited with carrying on their persons a poison for use in case of adversity. All ancient authors agree as to their courage. They were devoted to their chiefs and friends to the point of self-sacrifice, and were wild and warlike, always ready for strife, preferring war to peace, and placing a higher value on their arms and their chargers than upon their very lives. The women in no wise yielded in courage to the men. The Galician wives followed their husbands to the war and allowed themselves to be killed rather than give way, and when they saw that they were about to be taken prisoners they preferred to take their own lives rather than to fall into the hands of the enemy. During Augustus's campaign against the Cantabrians the mothers killed their children rather than allow them to fall into the hands of the Romans. There are numerous instances of the Iberians preferring death to the horrors and shame of slavery, and, after a prolonged and desperate resistance, destroying all that was valuable and sacrificing their women, children, and themselves before their towns fell into the hands of their enemies. Numantia is the best-known instance of this heroic conception of individual liberty, of self-respect, and of freedom from a foreign yoke, but there are others besides, such as that of Saguntum when besieged by Hannibal, and Astapa when attacked by Scipio.

Strabo (13) tells us, on the other hand, that the Iberians combined with presumptuous pride a naturally false and treacherous character, while Livy accuses them of being factious and eager for change (14).

The Iberians of the mountainous regions and the high plateaus of the Peninsula were a sober and abstemious race, whose principal food was the flesh of the flocks of sheep they raised, to which they added during part of the year a bread made of acorn flour; while their principal beverage was a sort of beer prepared from barley, called *caelia* or *cerea*. They devoted themselves with passion to all kinds of corporal exercises. They indulged in horse-racing and in gymnastic sports, in pugilistic encounters and in foot-racing, while at times they simulated skirmishes and regular battles. Can it consequently be a cause for surprise that such a brave, strenuous, and warlike race should have been proud of their arms and have made good use of their weapons in their struggles for liberty? What those weapons were, from whence they were derived, and the use the Iberians made of them I will now endeavour to show (15, 16).

General List of Weapons.

The arms and armour of the Iberians fall naturally under the usual classification of weapons of offence and weapons of defence, although some may possibly have served a double purpose.

Among the weapons of offence were

the sword,	*Soliferreum*,
sabre (*falcata*),	double axe or *Bipennis*,
dagger,	a curved weapon (*Falx*),
spear,	trident and bident,
lance,	bow, and sling;

while the helmet, cuirass, shield, and greave constituted their defensive armour. There was, moreover, at least one composite weapon made of a long wooden shaft with a spearhead at one end and a trident at the other.

This long and varied list is not the product of guess-work. It has been compiled, with but few exceptions, from documentary evidence gathered either from the classical authors who write of the Iberians and describe their weapons, or from the coinage struck in their country by the Iberians themselves. I purpose, moreover, to show the standards which they carried into battle, the trumpets with which their troops were called together or urged on to fight, and the elaborate and well-designed accoutrements of their cavalry.

Fig. 2 represents a group of typical Iberian weapons gathered together from different sources—swords and spearheads from actual specimens, and the rest from representations on coins. They must necessarily be somewhat conventional in the latter case, but the purpose which they served is in most instances quite unmistakable.

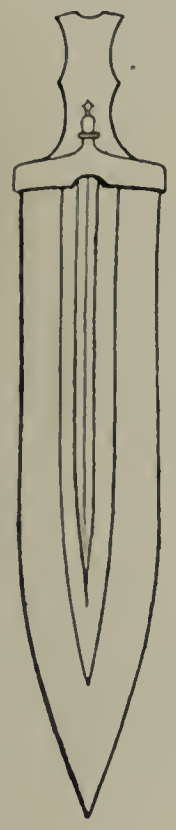
On plate X are illustrations of some of the autonomous Iberian coins on which the weapons in use in the country are depicted. It would be difficult to point to another instance where the value of the coinage of a country as an historical and iconographical record of the habits and customs of the people is in itself so patent, and of so high an order. It was not, however, to be expected that every weapon in use by the various peoples in such an essentially varied country, during a period of approximately five centuries, would be reproduced on the coins, although we do find clearly marked instances of the representation of weapons of which no mention is made in history, and of which no material trace has yet been found in the country itself, such, for instance, as the double axe and the combined spear and trident of which I have already spoken. Then, again, from the historical point of view the coinage in itself covers a well-defined period beginning with, or shortly following, the Roman intrusion into the Peninsula and ending with the Augustan campaigns at the end of the last

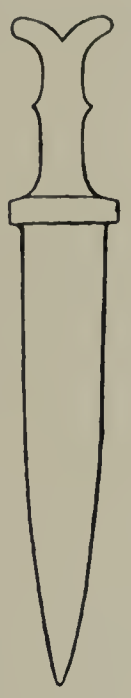
century B.C. The weapons in use during those two and a quarter centuries, which cover half the historical period of which this paper treats, are, as I have pointed out, clearly represented, but it is not to be supposed that they were evolved, invented, or adopted only during that period. Many, or indeed most of them, must have been in use long, perhaps centuries, before the introduction of coinage into the country. It is a matter of regret, however, that although the coinage of Iberia has been studied with attention and care by numismatists and collectors during the past century, and although such erudite and voluminous works as those of Delgado (17) and Heiss (18) have been produced within quite recent times, many problems connected with its origin and chronological sequence still remain unsolved. The language of its inscriptions, for example, is lost, and most of them are in consequence undecipherable. There are, it is true, instances where the inscriptions are bilingual and are written in the Iberian and Roman tongues, and where it is possible to determine accurately the value of the Iberian characters, while there are others where the meaning of the word, such for instance as ⟨◇≷ᚱ (Saguntum), has been definitely ascertained. But in many other cases the attribution of the coins to any particular state has been based on surmise or deduction from the occurrence of particular coins within its territory. It cannot consequently be surprising that there is still confusion and contradiction in regard to the origin of many of the autonomous issues, and it is fervently to be hoped that some such scholarly and experienced numismatist as D. Antonio Vives, whose authoritative and elaborate treatise on the Arabic coinage of Spain is well known, will devote himself to the elaboration of a rational system and to the elucidation of the important problems which still remain unsolved in connexion with the Iberian coinage of his country. In the meantime such information as is already available with regard to it will fortunately be found, on the whole, to be sufficient for my purpose.[1]

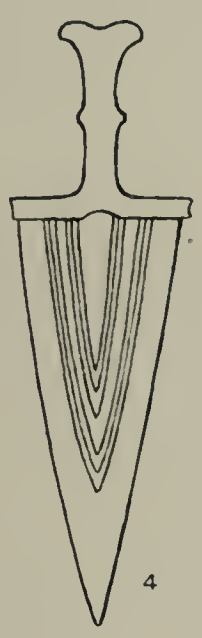
The Roman intrusion brought the coinage of Rome into Iberia, and the Roman *as* and its divisions circulated widely throughout the country. The early denarii were also brought into Iberia. At a subsequent period, and in all probability as soon as the Romans felt sure of their hold on the part of the Peninsula which they had mastered, the *as* and its subdivisions were struck in Iberia itself, and they continued for a long period to be the only representative Roman coins that served as the medium of exchange in that country. There was, however, a contemporaneous and similar coinage in circulation in the

[1] In the following remarks I make no allusion to the abundant coinage which was issued at Emporiae, Rhoda, and other places on the east coast under Greek influence, nor to the coinage, Phoenician (?), Carthaginian, or otherwise, which was struck on the south and south-east coasts where those nations had their settlements and factories, as I am essentially concerned with the Iberians and with Iberian and other cognate coinages bearing representations of their warriors and the weapons they used.



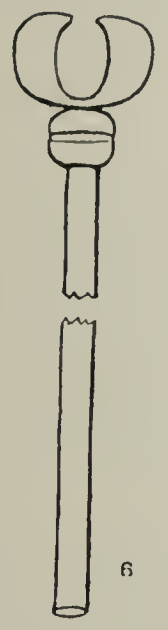






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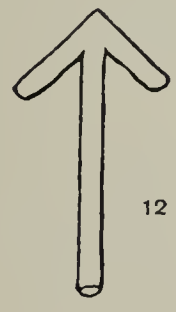
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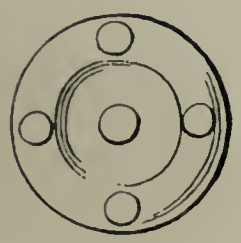
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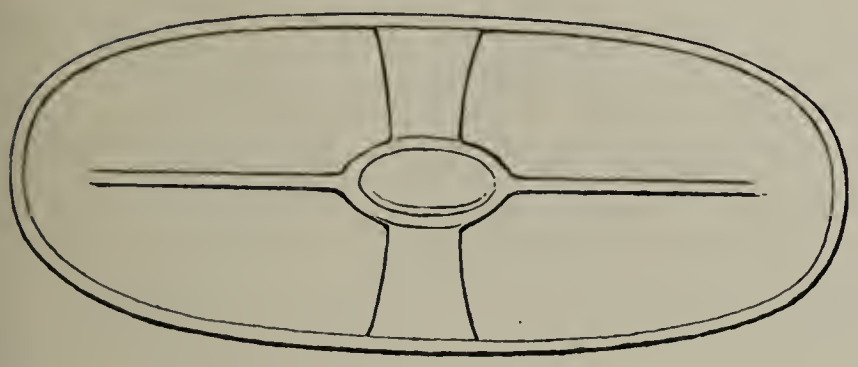
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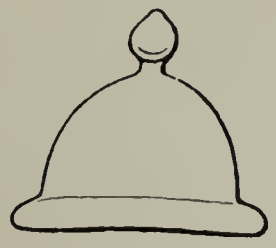
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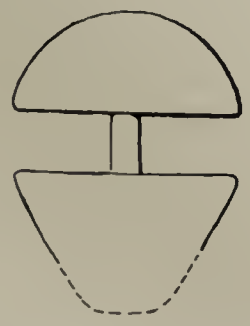




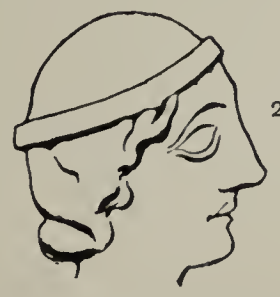
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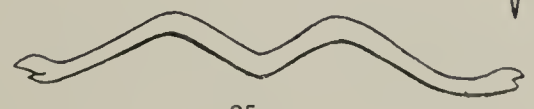


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Fig. 2. Typical Iberian weapons, reproduced from monuments, coins, &c.

country, viz. that of the various states which had been brought within the pale of Rome, but which had preserved the independence of their political organizations and the privilege of conducting their own affairs of state. It was this coinage which constituted the autonomous issues of Iberia. Probably most of the different tribes were accorded the privilege of coining their own issues, and this would account for their great variety. No Iberian gold coins are known. The silver and bronze issues were invariably based upon the Roman *denarius* and *as* and upon their respective subdivisions.

I have divided the coins illustrated on plate X into three sections. The first and largest comprises coins with Iberian inscriptions. These are the Iberian autonomous coins properly so called. The next section illustrates Roman bronze coins struck in Iberia, but which nevertheless bear on the weapons of the Iberians in that they show such weapons on the reverse, either singly or grouped together as trophies. The third section comprises autonomous denarii and the all-important coins of Carisius, the legate of Augustus, who conducted the final campaign against the Cantabrians, and who recorded his victories by representing the weapons of his adversaries on the money which he struck for the pay of his soldiers in Spain. Speaking generally, the obverse of the autonomous coinage struck in Celtiberia and by the more northerly states bore the head of Hercules, with varied mint-marks or symbols, and occasionally a monogram or an inscription; while the reverse represented a mounted warrior armed with various weapons. It was otherwise in Turdetania and in the southern, or non-fighting, part of the Peninsula, where the type of the head on the obverse varied greatly, while the reverse depicted the natural products of the rivers or soil, such, for instance, as a fish (the *sábalo* or chad) on the coins of Caura, and the ears of corn on the coins of Carmo. The difference in type is probably accounted for by the fact that the Romans quickly became masters of the fertile east coast and of the rich and peaceful southern part of Iberia, and that there the coinage was struck by them or under their direct supervision, whereas it took them two centuries to reduce to submission the brave and warlike states and tribes of the centre and north of the Peninsula, who continued during most of that period to maintain their independence or semi-independence, and to issue their own distinctive coinage. The crudeness of the design and the want of technical knowledge and artistic feeling shown in the execution of such coinage point in many instances (plate X, nos. 4, 7, 13) to a low level of culture in the states that struck them. There are other instances, however, where the design is good and the execution refined (plate X, nos. 1 and 10), and the coins in such cases are of the greatest assistance in enabling us to determine the nature of the weapons in the hands of the warriors.



AUTONOMOUS AND ROMAN COINS STRUCK IN IBERIA

Section 1. Nos. 1–7 and 9.
Section 2. Nos. 8 and 10–13.
Section 3. Nos. 14–17 and 18–21.

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The Iberian bronze coinage is usually much worn and defaced, which points to its having been in circulation during a long period; and this fact, added to the roughness of the original execution, causes well-preserved specimens to be extremely rare. All those represented on plate X have been carefully selected with a view to showing as clearly as possible the various weapons in use.

The question might arise how far I am warranted in assuming that the reverses of the coins illustrated represent the Iberians and their weapons. The inference is, I maintain, entirely justified, and for the following reasons: the head on the obverse of the first four rows of the autonomous Iberian coinage represented on plate X has no connexion with Roman coinage; the reverses (with one exception) bear inscriptions in the Iberian language; while, generally speaking, the weapons and armour represented are distinctive in themselves and with one or two exceptions they certainly are not Roman; and if they are not Roman, what can they be? They are assuredly neither Phoenician, Carthaginian, nor Greek, and the only logical conclusion that it is possible to come to is that they are Iberian. There is, moreover, confirmatory evidence at hand in proof of the correctness of my contention in the coins of Carisius, which are illustrated in the last row on plate X and show on their reverses trophies representing the greater part of the weapons distinguishable on other Iberian coins. I do not contest the fact that the reverses may, in some instances, also appear on coins which are unquestionably Roman, such for instance as the horseman represented on the reverse of coin no. 1 on plate X, which is attributed to Segóbriga, who reappears on a coin with the head of Augustus on the obverse and with a Latin name of the town where it was struck, *Bilbilis Italica*, on obverse and reverse (fig. 3); but I do not think that the assumption will be considered too far-fetched or incorrect that at some period subsequent to the complete subjection of the Pelendones, the Romans issued at Bilbilis a coin with their own new obverse and a Latin inscription, while they retained the reverse with the warrior to which the Iberians had long been accustomed.



Fig. 3. Roman coin (Æ) struck at Bilbilis Italica.

The coins on plate X, taken in the order in which they appear, may be briefly described as follows:

No.	1.	Attributed to Segóbriga.	Reverse: Horseman with lance and crested helmet.
,,	2.	,, Arsa-Arzaez.	Reverse: Horseman with bipennis or a throwing weapon.
,,	3.	,, Setisacum.	Reverse: Horseman with a crescent-shaped implement fitted to a shaft.

No. 4.	Attributed to	Hil-Auca.	Reverse: Horseman with a sickle-shaped weapon (*falx*).
,, 5.	,,	Ilgone.	Reverse: Horseman with round shield and helmet with plume.
,, 6.	,,	Azahes.	Reverse: Horseman with military trumpet and helmet.
,, 7.	,,	Irssona.	Reverse: Horseman with straight sword.
,, 8.	,,	Ventipo.	Reverse: Foot-soldier with composite weapon, a long oval shield, and crested helmet.
,, 9.	,,	Tarraco-Cose.	Obverse: Dagger.
,, 10 and 13.	,,	Carthago Nova.	Reverse: Trophy with helmet, cuirass or jerkin, round shields, bow and quiver.
,, 11.	,,	Turri Regina.	Reverse: Sabre (*espada falcata*) and round shield.
,, 12.	,,	Carthago Nova.	Reverse: Shield, two spears, dagger, and *espada falcata*.
,, 14.	,,	Ilgone (denarius).	Reverse: Horseman with conical helmet and round shield (cf. no. 5).
,, 15.	,,	Belsinum (denarius).	Reverse: Cf. no. 7.
,, 16.	,,	Osca (denarius).	Reverse: Horseman with conical helmet and shield.
,, 17.	,,	Arsa-Arzacz (denarius).	Reverse: Cf. no. 2.
,, 18–21.	Four denarii struck about the years 24–23 B.C. by P. Carisius, the legate of Augustus in Spain, commemorating his victories over the Iberian tribes of the mountainous regions in the north-west of the Peninsula. Among the trophies and arms reproduced are the spear, the Iberian round shield, the *espada falcata*, the dagger, helmet with visor and plume, the *bipennis* or double-axe, and the javelin.		

No. 20 represents a trophy of Iberian arms[1] (19) without any doubt, but it is not definitely known to which of the campaigns of Carisius it applies. The trophy consists of a round helmet or cap, a cuirass or jerkin, the typical round shield and two ill-defined weapons, one of which, on the trophy's right, I should almost be inclined to attribute, were it not for the chape, to an antennae sword. There is, moreover, a quinarius struck by Carisius which represents Victory crowning a trophy of Celtiberian arms (19), against the base of which a similar sabre and dagger to those shown on no. 18 (plate X) are resting. I have not illustrated this coin.

[1] The attributions have been taken from Delgado, *Nuevo Método*. Heiss is not always in accord with Delgado (20).

The coins here described constitute, as I have already pointed out, a series of records of the highest importance. They are corroborative evidence of the use by the Iberians of the weapons of which I treat, while they prove that those weapons were still in use by the Cantabri and the Astures, the last of the Iberian tribes to be brought under Roman rule in the years 25–23 B.C. They, moreover, close the period with which I deal by bringing the history of the arms of the Iberians down to the last quarter of the last century B.C. They also practically close the period of autonomous issues in Spain, as it was but soon after the reign of Augustus, viz. in that of Caligula, that the edict went forth that coinage in Hispania was to cease.

I shall refer to the several coins again when dealing separately with each weapon, as I will now proceed to do.

The Swords.

The swords used by the Iberians, which were all of iron or steel, may be grouped into four main divisions, viz. the antennae sword, the short straight sword,[1] the curved sword or sabre, known as the *falcata*, and the La Tène sword.

Antennae Sword.

The few and isolated discoveries of antennae swords in the Iberian Peninsula, some of which were of bronze, while one discovered near Cape Ortiguera had the grip of bronze and the blade of iron, would not have been sufficient to permit of the inclusion of that arm among the weapons of the Iberians, and the question whether they extensively employed that form of sword might have remained obscure, had it not been for the remarkable and all-important discoveries by the Marques de Cerralbo in Central Spain about two years ago. The Marques, to whose enlightened research and enthusiastic and persistent investigations his country and archaeology owe so much, was fortunate enough to discover on his own property, near Santa Maria de Huerta, in the province of Soria, in the centre of Celtiberia, a necropolis comprising a large number of interments (about 2,200), the majority of which were those of Iberian warriors, whose ashes were buried with their personal adornments, with the arms they used, and with the trappings of their horses. There were also some interments of women with equally rich and appropriate furniture.

The necropolis occupied an elongated quadrangular space of considerable extent, the graves being arranged in long and parallel rows with a space between them. Each interment consisted of a large single block of stone placed on end, which showed above the ground; under it the arms of the departed warrior were carefully laid, while the urn with the ashes, the personal adornments, and

[1] Such as those found by the Marques de Cerralbo in the Aguilar de Anguita necropolis.

the horse-bits and accoutrements were placed at the side. The Marques de Cerralbo observed that there were invariably two terra-cotta spindle-whorls in each urn whether the interment were that of a man or a woman, a practice to which he attaches a ritual significance. I am indebted to the Marques's courtesy and kindness for much valuable information in regard to the discovery of the necropolis and its contents, and for permission to publish some of the long series of photographs which he has caused to be taken as records of the results of his discoveries.

On plate XI, fig. 1, will be found an illustration of one of the interments in which the grave furniture can clearly be distinguished. The urn rests close to the stone, while on one side of it are the horse-bits, and on the other a spear-head, a knife (which almost invariably formed part of a soldier's equipment), a spear-butt, an iron antennae sword, a lance or javelin head, and a set of fine bronze plaques or discs attached by chains, through which the head was passed to permit the ornament to fall on both sides of the body. The majority of the swords from this necropolis were of the antennae type, but some specimens of a short straight sword, to which I will presently refer, have also been found there. Two other swords discovered within the confines of the necropolis, one a La Tène II blade and the other very closely resembling a Roman *gladius*, are of so different a type that I think they must have belonged to subsequent interments.

The antennae swords from this necropolis varied in type, in form, and in size. The three principal varieties are illustrated on plate XI, fig. 2 (*a*, *b*, and *c*); *a* is the form which most resembles the late Hallstatt antennae sword. It may consequently be the oldest type of the three, and have been introduced into the Peninsula. The length of the blade is approximately 24 cm. ($9\frac{1}{2}$ in.). The grip has been broken, but the original length of the sword from the top of the antennae to the point of the blade was about 35 cm. (14 in.). It was a very short sword; indeed, it might almost be classified as a dagger. A particularly interesting example is *c*, and the only one found with a hilt peculiar in form and made of steel or of some other hard metal, such as white bronze or *speculum*.[1] It is a very fine example of the swordsmith's art. The grip is formed of two plates or 'scales' which widen in the middle and taper towards both ends, viz. towards the antennae in one direction and the shoulder-plate in the other. The tang of the blade was hammered out to the same shape and dimensions as the 'scales'. Plates of bone or ivory, or of some other perishable material, were inserted between the tang and the 'scales' to strengthen and ornament the grip. The blade is gracefully tapered, and is somewhat larger (58 cm.; 23 in.) than usual in this class of sword. There is, moreover, another point of interest attaching

[1] Composed of copper with a large admixture (up to 20 per cent.) of tin.

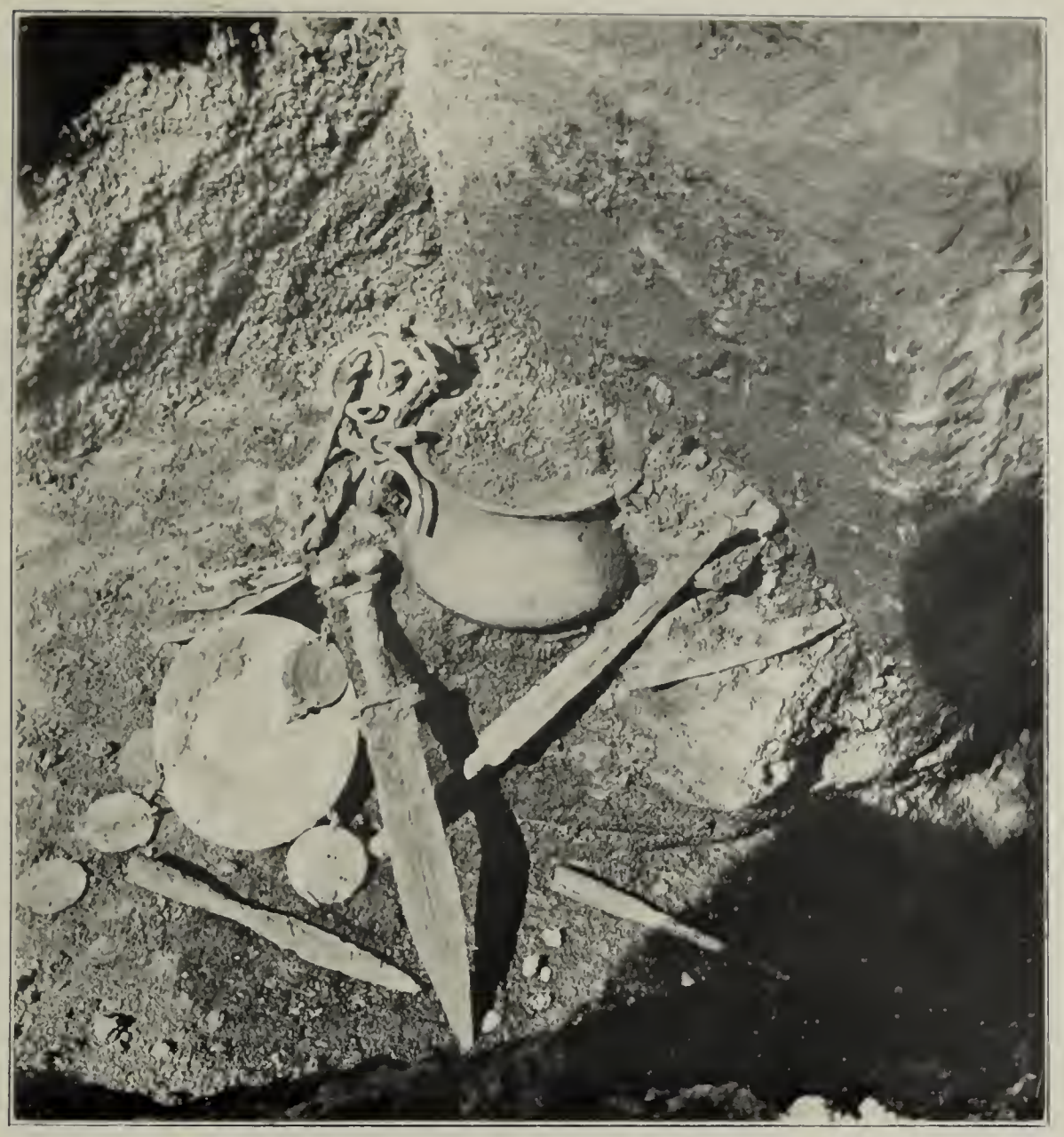


Fig. 1. Interment from the Iberian necropolis at Aguilar de Anguita
(*Reproduced by kind permission of the Marques de Cerralbo*)

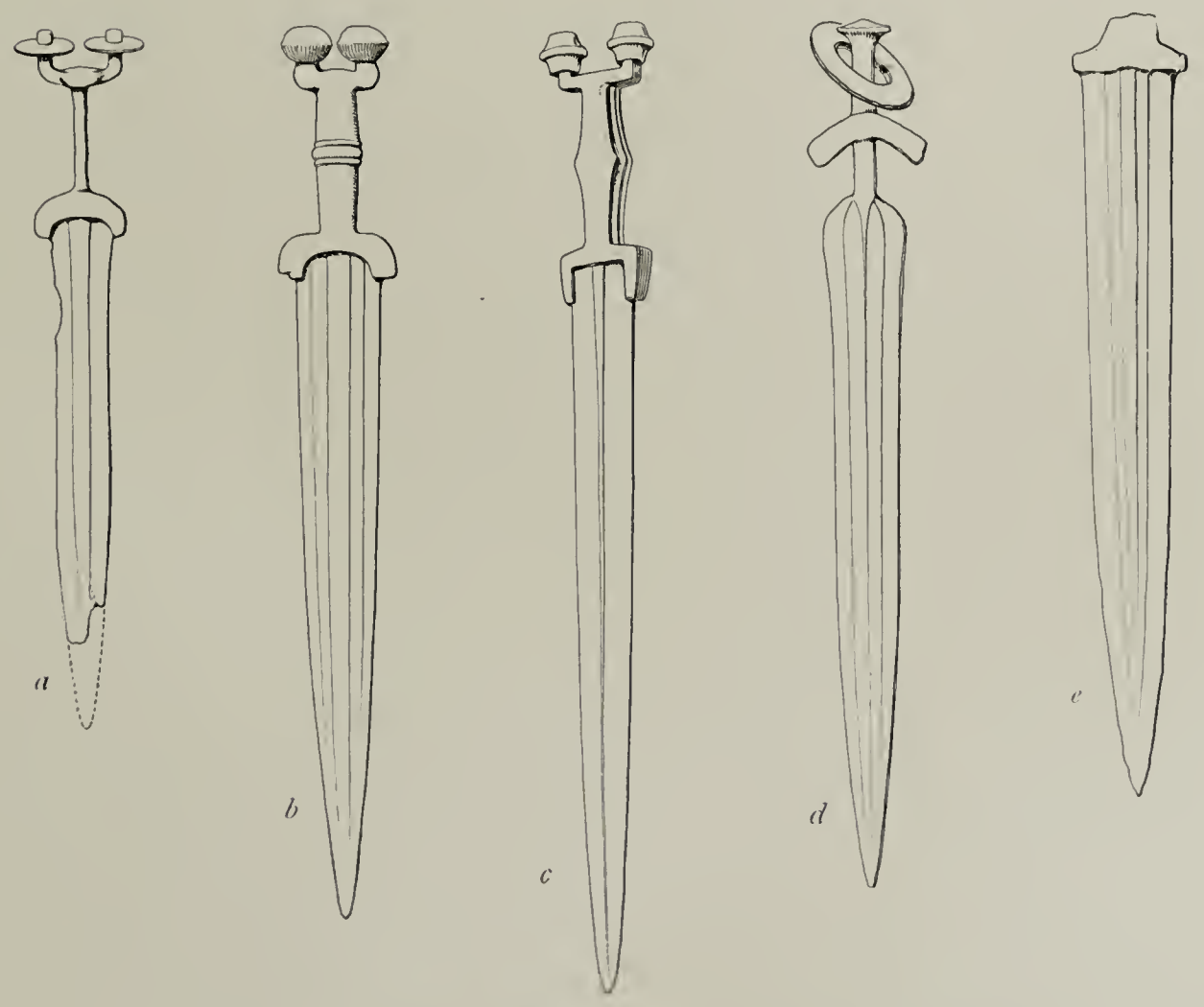


Fig. 2. Antennae and straight swords from Aguilar de Anguita

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to this particular example. It is of the same type as the iron antennae swords most frequently found in Gaul. A specimen identical in structure to the sword from the Aguilar necropolis has been found in a tumulus at Gramat, in the department of the Lot in France (22). It is probable that this type of antennae sword also came to the Iberians from beyond the Pyrenees.[1]

Plate XI, fig. 2 *d*, represents the type of antennae sword most commonly found in the Peninsula. The length of the blade varied from about 22 cm. to 36 cm. ($8\frac{1}{2}$ in. to 14 in.), while the length of the hilt and that of the grip remained con-



Fig. 4. Antennae sword from Hallstatt, showing method of construction.

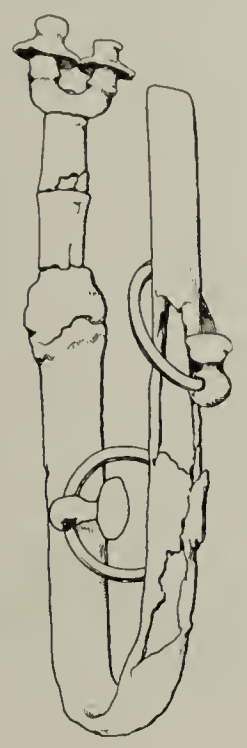


Fig. 5. Antennae sword with iron scabbard, from Aguilar de Anguita.



Fig. 6. Antennae sword with globular termination to chape.

stant, the dimensions being respectively 11 cm. and 7 cm. ($4\frac{1}{2}$ in. and $2\frac{3}{4}$ in.). The total length of the weapon varied from about 33 cm. to 47 cm. (13 in. to $18\frac{1}{2}$ in.).[2] In this instance, however, I do not think that the type came from the north of the Pyrenees, as the evidence afforded by the large number of examples found within the Peninsula, the simplicity of the hilt, and the numerous striations down the blade (a common feature of many Iberian weapons) point to its having been produced and manufactured in the country.

[1] The hilt and antennae of similar swords have been found in the tumuli on the Plateau de Gers (Général Pothier, *Les Tumulus du Plateau de Gers*, figs. 22 and 23).

[2] I have followed this method of recording the dimensions of all the swords referred to in this paper. Wherever a single dimension is given without definition it should be taken as applying to the length of the blade only.

The process of manufacture is, indeed, not without interest. A specimen of a late antennae sword from Hallstatt which is in the museum at Bern in Switzerland (fig. 4) clearly shows the method employed by the swordsmith in producing the finished article. The blade and the tang were forged in one piece, the antennae in another and separate piece. The grip, in the form of a tube, cut square at one end and worked out at the other to form a shoulder to the blade, constituted a third piece. The three pieces were assembled by the tang being passed through the tube and then through an opening in the bar connecting the antennae. A few strokes of the hammer on the tip of the tang riveted the three pieces together, forming the hilt, and so completing the sword. The knobs were also separate pieces. They were usually of iron, but sometimes of bronze or plated with bronze. They could be riveted on to the extremities of the antennae at any convenient time, and were more in the nature of an adornment than part of the sword itself, although they perhaps played a part in giving it balance. The tip of the tang which projected through the opening in the bar was not always hammered down. It sometimes took the form of a knob, to which a terminal of bronze or other metal was frequently fixed. Indeed, it was this central knob which subsequently developed into the form of a human head, a characteristic of the 'anthropoid short-swords' (*antennae*), which M. Salomon Reinach places later than 200 B.C. (23).

The Aguilar de Anguita examples bear evidence, as I have already mentioned, of local origin, and they certainly show greater skill in their manufacture and a higher class of workmanship than the Hallstatt specimen to which I have just referred. The system on which they were constructed was nevertheless the same as that of the Hallstatt example, except that the grip was made in two parts, each consisting of an elongated cone. The bases were brought together in the centre of the hilt, where they formed a swelling which filled the palm and so afforded a firmer grasp for the hand (plate XI, fig. 2 *b*).

The scabbards of the antennae swords were usually made of leather or wood, or of some other perishable material, the front and the back being bound together with strips of iron which followed the contour of the blade, and sometimes ended in a chape with a terminal of globular form. Two transverse bands of iron gave strength to the scabbard and afforded a support for the rings which served to attach the sword to the soldier's belt. The scabbard was also strengthened at its upper end by an iron band, which, in some instances, was decorated with delicate open step-work.

In two cases, however, the scabbards of the antennae swords found by the Marques de Cerralbo were of iron. One of them (fig. 5) contained a sword of perhaps the earlier type. In this case the sides were parallel and terminated in a square chape, while in another instance (fig. 6), where the scab-

bard still adheres to a sword of the indigenous type, it terminates in a globular chape.

I have already mentioned the bronze discs which were found in the warriors' graves. They were ornamented with various distinct and delicate designs, such as plain and concentric circles with a central boss, or with embossed designs filling up the intervening spaces (fig. 7). In one instance a plaque, covered with ornamental designs showing much artistic feeling, had been coated with silver, distinct traces of which still remain.



Fig. 7. Bronze plaques from Aguilar de Anguita.

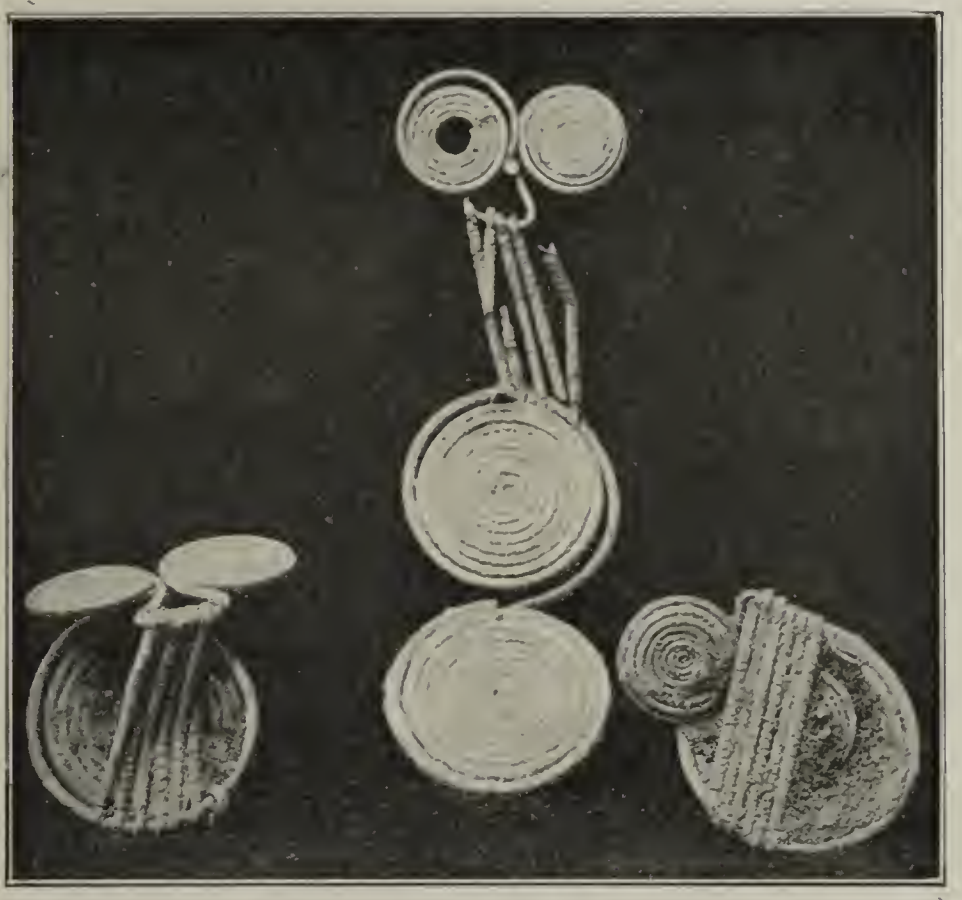


Fig. 8. Bronze ornaments from graves of women, Aguilar de Anguita.

Among the adornments of the women whose remains were buried in the Aguilar de Anguita necropolis, the most characteristic were the spiral objects arranged in groups or attached to others of spectacle-form by a band of wire supports (fig. 8). I am not aware that these handsome personal ornaments have been found[1] elsewhere in Spain, and one has to turn to the necropolis of Aufidena in Northern Italy to find an analogy with those from Aguilar de Anguita. The resemblance in form and design, however, between these objects of personal adornment in both cemeteries is so marked that the only logical conclusion to be drawn from them is that there must have been some form of intercommuni-

[1] I am informed by the Marques de Cerralbo that similar plaques have recently been discovered in the same part of Spain, but to the south of Aguilar de Anguita.

cation between the two countries, but whether it took place by land or by sea, by direct intercourse or through the medium of traders, is one of those problems of Iberian archaeology which still remain to be solved.

With regard to the fibulae, a considerable number were found at Aguilar de Anguita with the interments of both men and women, but only those which were composed wholly of bronze were found in a good state of preservation. There were several examples of the 'ring', or Iberian, fibula, a type of which a great quantity was found on the site of the pre-Roman sanctuary at Despeñaperros (4). Those from the Aguilar cemetery were, however, of a somewhat older form (fig. 9). Next in order from the point of view of frequency of occurrence were those with an upturned foot terminating in a knob or button (fig. 10). They were fitted with a spring forming an equal number of spirals on either side of the bow, one end of the wire being prolonged to form the pin. This type of fibula is of frequent occurrence in the northern part of the Iberian Peninsula and in Lusitania. It has also been found at the cemetery at Avezac-Prat to the north of the Pyrenees (24), but in that instance it was made wholly of iron. The type is known as the *fibule à arbalète*, and it is usually attributed to the fifth or fourth century B.C. Fig. 11 shows an early La Tène type, but not so late in character as to preclude its association with the fibula which I have just described.

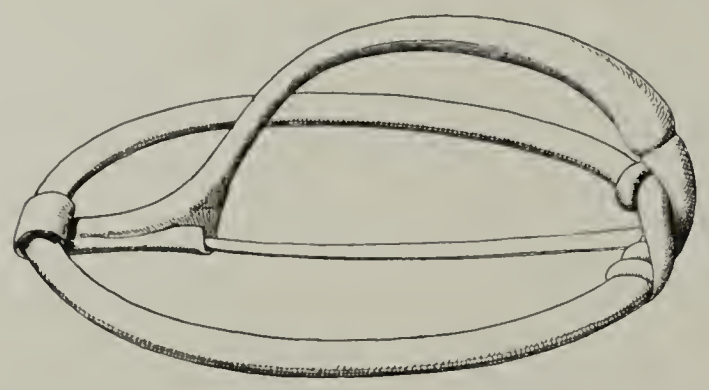


Fig. 9. Iberian form of fibula, from Aguilar de Anguita.

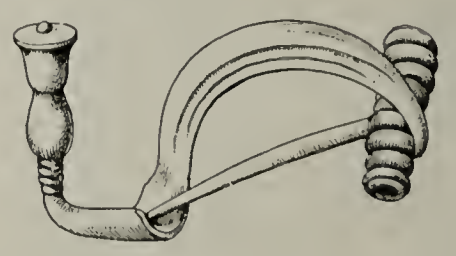


Fig. 10. Fibula from Aguilar de Anguita.



Fig. 11. Fibula from Aguilar de Anguita.

The pottery forms another very interesting feature of the discoveries made in the Aguilar de Anguita necropolis. Several of the most typical examples from this cemetery are illustrated on plate XII, and in some respects they are unlike anything that has hitherto been discovered within the Peninsula or elsewhere. The specimens, which vary considerably in form, in texture, and in colour, mostly served as cinerary urns. Several had specially adapted covers,



CINERARY URNS AND POTTERY FROM THE NECROPOLIS
AT AGUILAR DE ANGUITA

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whereas in some instances the urn containing the ashes was covered by a stone, or by another vessel, as can clearly be seen in the top group. The arrangement shown in the first urn of the top row is very unusual. The body of the urn has been pierced with a number of triangular openings, into which the spear and javelin heads of the departed warrior have been inserted. The goblet-shaped vessel which covers the urn next in order, and of which there is another example in the centre of the top row of the lower group, recalls the long series of similarly shaped vessels found by MM. Henri and Louis Siret in south-eastern Spain (25). The urn with the small cover in the lower row of the upper group is also interesting. Both the cover and the urn are provided with lugs or projections pierced with holes for facilitating the attachment of the cover to the urn.

I have already mentioned the analogy between some of the fibulae from Aguilar de Anguita and those from Avezac-Prat (24), but the similarity is much more marked in the case of weapons from the two cemeteries. This especially applies to the antennae swords and to the long iron javelin, made in one piece, and known to pre-Augustan historians as the *soliferreum*, which have been found at both sites. The knives, too, are practically identical in the two cases, although too much importance should not be attached to the similarity in this particular instance, for knives alike in form were then known the world over. Two complete antennae swords and fragments of many others were found at Avezac-Prat. One has a hilt of the same form as that of *c*, plate XI, fig. 2, from Aguilar de Anguita, and it appears to have been manufactured in much the same way; while the hilt of the other was formed by flattening the tang and covering it with scales of wood, bone, or leather. The Avezac-Prat swords appear to have been longer than those found in Iberia. They varied in length from 46 cm. to 65 cm. (18 in. to 25 in.), while the length of the grip varied from 6 cm. to 9 cm. ($2\frac{1}{2}$ in. to $3\frac{1}{2}$ in.). The scabbards in most instances were of metal, although some were doubtless of wood or of leather. Those in metal were of an elaborate character, being 'formed from a sheet of copper covered by a sheet of iron, on which there were bronze incrustations' (24). No such scabbards have been found at Aguilar. There is another feature which distinguishes the Avezac-Prat swords from those found in Iberia. The former have a strongly defined midrib running down the whole length of the blade, whereas the Aguilar swords have none; and the latter are adorned with many striations, almost covering the blade in some instances, whereas such Avezac swords as are illustrated have practically none.

With regard to the *soliferreum* or *gaesum* the forms show much similarity in both cases, but the Avezac-Prat specimen is more elegant in shape and shows a higher grade of workmanship. Indeed, speaking generally, this applies to the bulk of the objects found at Avezac-Prat. The jewellery shows more artistic

conception and greater ability in execution, while the pottery, although in both cases it was made on the wheel, is more elegant in form and finer in texture at Avezac. There are, however, points of dissimilarity between the two cemeteries. At Avezac there were two forms of burial, inhumation and incineration, the latter predominating; whereas cremation only was practised at Aguilar. The urns containing the ashes as well as the weapons and ornaments of the deceased (which do not appear to have been thrown on the pyre at Aguilar) were buried within tumuli or above the ground at Avezac, whereas in Iberia they were buried underground. At Avezac a number of bronze torcs were found. None has been discovered in the Aguilar necropolis, which has, however, produced the bronze disc-adornments which are absent from Avezac-Prat. The two cemeteries cannot consequently be considered to be of the same age or to belong to the same peoples, or if they did belong to the same peoples the branch which dwelt in Iberia must have lost the habits and customs of their common forefathers.

But all that I have said about the jewellery and the methods of interment does not dispose of the question of the affinity of some of the weapons from the two cemeteries. That, I think, after a careful consideration of all the evidence available, can only be due to their introduction into Iberia by the people who had brought them as far west in Gaul as the Central Pyrenees. M. Piette, from whose work (24) I have been quoting, assigns no definite date to the Avezac necropolis. He expresses the opinion, however, that the interments at Avezac are of two periods which can be differentiated by the position of the tumuli and certain peculiarities in connexion with the antennae swords (no other type of sword appears to have been found there), and that the older is anterior, and the more recent posterior, to the 'cemeteries of the Marne'. He attributes them to the 'first hordes armed with iron who penetrated into Gaul' and 'to their descendants'. I venture the opinion that these 'descendants' penetrated into Iberia, armed of course according to their usage, and that they were the invading Celts of history. It is well known how rapidly the intruding Celts overran a large portion of the Peninsula, and how quickly they became merged into the tribes whose territory they had invaded. Indeed, a component generic name (Celtiberia) expressing the fusion was given, as I have already pointed out, to a large territory in North-Central Spain, and in the centre of that territory was Aguilar de Anguita. There is no direct mention in history of the time when the intrusion took place, but Herodotus is the first to make mention, about 450 B.C., of the presence of the Celts in Iberia. The Aguilar de Anguita necropolis should consequently be posterior to that date, and, without any intention to dogmatize, I think that it may be classified as belonging to the end of the fifth or the early part of the fourth century B.C. I thus place the first stake on the line of chronological sequence which I will endeavour to follow in this paper.

The Marques de Cerralbo was fortunate enough to discover another cemetery near the ancient Arcóbriga during the summer of 1911, and to find in it a considerable number of warriors' graves, in which there were five short swords of the local Iberian antennae type and a considerable number with long flat blades of the type usually known as La Tène II.

In order to obtain further and confirmatory evidence of the employment of the antennae sword of iron in Iberia we must leave the country of the Arevaci or Lusones in Celtiberia and go to the south-east corner of the Peninsula to Villaricos, the pre-Roman and Roman Baria, where the thorough and carefully recorded investigations of M. Louis Siret have brought to light such a store of evidence of the highest importance in its bearing on the early history and archaeology of the Iberian Peninsula. M. Siret has been fortunate in that his ground for researches is quite near the sea and in close proximity to the Sierra Almagrera, whose rich silver-ores must have formed the objective of many an expedition in bygone times, and have provided during many centuries the principal medium of exchange with those who came from afar to barter for it. Some of the expeditions led, perhaps, to the establishment of settlements at Villaricos, and it is in the traces of these settlements that M. Siret has so successfully sought for enlightenment as to the peoples who founded them, and as to the customs, usages, and habits of those who occupied them. I can give no better idea of the richness of the archaeological soil which M. Siret has so patiently investigated than by mentioning that he states that he has been able, through directly acquired archaeological evidence, to define the following distinct phases of culture within a short distance of the spot where he resides: Palaeolithic (Mousterian, Aurignacian, Magdalenian), Neolithic, Aeneolithic, Bronze, Tyrian, Carthaginian and indigenous, Roman, Visigothic, Byzantine and Arabic.

M. Siret has so far found but two examples of the antennae sword. They are well defined as to type. They belong to the one which I described, when dealing with the weapons discovered in the Aguilar de Anguita necropolis, as having been produced in the country (plate XI, fig. 2 *b*). The grave furniture with which they were associated at Villaricos, however, was so divergent in character from that of the Aguilar cemetery that it points to a different culture, and perhaps to a different period.

One of the Villaricos swords, which appears to have been deliberately broken in half, was found in a grave, with a cinerary urn of a common type containing ashes and a bronze bell. The other was discovered in a crypt containing at least nineteen interments, the majority of which were inhumation, while the others were cremation, burials. Ostrich eggs formed part of the grave furniture, and the sword was found at the bottom of the crypt under a wooden coffin. No other arms and no fibulae were found with these swords. Both

these interments were in a part of the field of M. Siret's operations, which was apparently unconnected with the richer section where the Greek vases and the *espadas falcatas* were found, and they are probably older in date.

The fact that only two isolated antennae swords have been found at Villaricos would point to their having been but rarely used; but their appearance in the south-east portion of the Peninsula is of interest and of importance as showing that at some period this particular form of sword found its way there. It is difficult to say with precision at what time this occurred, but I venture the opinion that it was, in any case, prior to the period when the *falcata* was the common weapon of offence of the Iberians at Villaricos, which can fortunately be defined by the Greek pottery found in association with them and placed at about the middle of the fourth century B.C. This would take the antennae swords back to the end of the fifth or to the first half of the fourth century B.C. May not the Celtic intrusion, to which I have referred when dealing with the Aguilar de Anguita necropolis, have pushed its outposts even into this remote part of the Peninsula?

Straight Sword.

I have already mentioned (p. 220) that among the weapons discovered in the necropolis of Aguilar de Anguita there was a straight sword of a different type from the antennae sword. I am not aware that any straight sword of iron of similar form has so far been found in any other country. Fig. 12 gives a representation of this sword (plate XI, fig. 2 *c*). The blade is broader and longer than that of the antennae swords, while the hilt is of an entirely different character. The blade in the example illustrated is 52 cm. ($21\frac{1}{2}$ in.) long. The tang is incomplete, as is usually the case with this type of straight sword, but a dagger, which is in fact but a reduced straight sword in form, and which was found in the same necropolis, has the hilt complete; while a very fine specimen of another dagger of the same type but of a later date, which is in my possession, is so nearly perfect that the hilt can be easily reconstituted (fig. 13). The tang was flattened and shaped to form the hilt and to afford a firm grasp for the hand. The 'scales' were probably of wood or bone, and there does not appear to have been a separate pommel, but the upper end of the tang was sometimes widened out, and so formed a false pommel; this was especially the case with the Iberian daggers, which for a long period of years continued to perpetuate the form of this straight sword (see fig. 37, nos. 1, 3, 4, 6). The shoulder-plate of this type of straight sword was formed of a separate band, which was slipped over the tang and riveted to the shoulder of the blade. It also served to hold the 'scales' firmly in place. The centre of the band is very frequently prolonged towards the pommel to form an elegant ornament of artistic design and

delicate workmanship, which shows that the art of the swordsmith had even at an early date reached a high level in Iberia. The ornament can be seen, although somewhat indistinctly, in the example from Aguilar de Anguita (fig. 12), and I have shown it in the sketch of the grip in fig. 13.

I must not leave this section of my study of Iberian weapons without calling attention to still another straight sword discovered by the Marques de Cerralbo in the same necropolis, which is illustrated in fig. 14. It is in

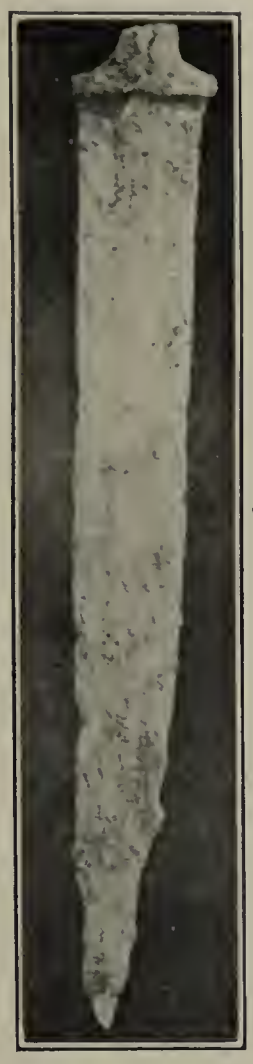


Fig. 12. Straight sword, Aguilar de Anguita.

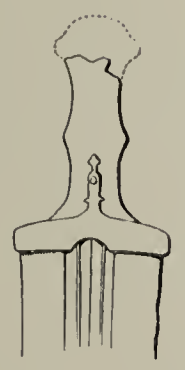


Fig. 13. Dagger hilt from Almedinilla.



Fig. 14. Transition (?) sword, Aguilar de Anguita.

a good state of preservation, as is the case indeed with most of the grave furniture from this cemetery, and it can easily be reconstituted. The blade is about 49 cm. long ($19\frac{1}{2}$ in.). It slopes away at the shoulders and tapers gradually to a fine point. The tang, which is of the usual length of all the straight swords from Iberia which I have examined, about 11 cm. ($4\frac{1}{2}$ in.), has been flattened at the end to form a support for a ring, to judge from the photograph from which fig. 14 has been taken. This was held up against it by the 'scales', and so formed the pommel, while the shoulder-plate, which is not in its proper position, is curved to follow and to rest upon the sloping lines of the shoulder

of the blade. This sword is not of such good workmanship as either the antennae or the straight sword which I have just described, and it may be of later date than either of them. Indeed it offers features so distinctly typical of swords of La Tène period that one cannot avoid the inference that it may be a transition weapon and a local attempt to produce a sword of that type. The fact should not be lost sight of that a specimen of a true La Tène sword, which M. Déchelette, a very competent judge, pronounces to be of La Tène I type (26), has been discovered in the same necropolis, and that several other La Tène swords have been found associated with a small number of antennae swords of the Aguilar de Anguita type in another cemetery (Arcóbriga) in Celtiberia.

The investigations of the Marques de Cerralbo have furthermore thrown much light on the equipment of a soldier of the period of the Aguilar de Anguita necropolis, and have shown that it consisted of a short straight sword of the antennae type, or of a somewhat longer straight sword with a hilt of plainer form (fig. 12), of a dagger, of two spears, or of a javelin or *soliferreum*, and of two knives, generally a large and a smaller one (fig. 37, 12 and 13). In the case of a cavalry soldier his horse's trappings were buried with him, while his weapons do not appear to have differed materially from those of the foot-soldier. The latter, however, was also armed with the *soliferreum*, which could not have been wielded from horseback. They both had shields, many traces of which have been found among the grave furniture. It is probable, to judge by his equipment, that the cavalryman also fought, and perhaps principally, on foot, as the antennae sword would certainly not have proved to be an efficient weapon of attack in the case of a soldier fighting from horseback.

I have already called attention to the dimensions of the antennae swords, which by reason of their shortness might be technically classified as daggers. But as Sir Frederick Pollock points out in *The Forms and History of the Sword* (27): 'It is impossible to define where a dagger ends and a sword begins, but perhaps the metal-bladed weapon may fairly be called a sword when it is 2 ft. long (60 cm.) and upwards, and has a metal grip (the tang) wrought in the same piece.' Very few examples of Iberian swords, whether of the antennae or the *falcata* forms, reach this length, and perhaps the same authority's definition of a sword in the *Encyclopaedia Britannica* (28), viz. 'a weapon too large to be concealed about the person', is more applicable to the weapons which I am considering. There is a further justification for calling the straight weapons swords, which applies equally well to *falcatas*. It is that they have been found in both instances associated with a shorter and smaller weapon which is unquestionably a dagger.

I have already pointed out that the horsemen represented on some of the coins struck in Iberia appear to be armed with a straight sword, but unfor-

tunately its form cannot be clearly distinguished. It cannot, I think, have been an antennae sword, and I suggest that it may have been, if a straight sword at all, of the longer and narrower type, with the blade, the tang, and the pommel forged in one piece (figs. 12, 13), which subsequently to its appearance in the Aguilar de Anguita necropolis became fixed, as a type, in the dagger, which was so frequently associated with the sabre or *falcata* during the three centuries which preceded the Christian era.

The Sabre or 'Espada falcata'.

I will now deal with the sabre or sickle-shaped weapon known to Spanish archaeologists by the name of the *espada falcata*, which, to judge by the numbers which have been found within the Peninsula, and the many and various instances in which we find it on coins, on monuments, and in history, became towards the middle of the fourth century B.C., if not earlier, the principal weapon of offence of the Iberians, and continued until the end of the last century B.C. Indeed, it is so important a weapon from an historical, archaeological, and, I would add, from a military point of view, that I propose to devote a special section to its consideration.

The Espada falcata.

An implement of war may either have been evolved from an instrument which had served for less destructive purposes; it may have been invented; or it may have been introduced into a country by the people who used it abroad. The *falcata* was unquestionably neither evolved nor invented by the Iberians. It came to them from a foreign country, and I trust that a short historical account of this widespread and efficient weapon in other countries will not be out of place.

The *espada falcata* was well known as a weapon of offence in other lands than Spain. The Greeks had been familiar with it for more than half a century at least before the period I am considering. Indeed, I do not think that there can be any reasonable doubt that it came to the Iberians from the Greeks themselves, either directly by introduction into Iberia through the Greek colonies on the eastern shore of the Peninsula, or through the Iberians having come into contact with the Greeks during some of their early expeditions, when they served as mercenaries in the armies of other Powers. Its introduction may have been due to intercourse and contact, at some period still ill defined, between Iberia and Etruria. But I do not think that this was the case, although that such intercourse lasted through a long period is undoubtedly proved by the similarity and, indeed, affinity between some of the weapons of offence, the defensive armour,

and the horse accoutrements, especially the bits, which have been found in both peninsulas, as well as between the customs of both peoples as disclosed by the grave furniture in the Aguilar and Anfidena cemeteries.

However, on the strength of such evidence as is available, I presume that the *espada falcata* came from Greece to Iberia. It may consequently not be without interest to trace its history in Greece, where this type of sword was known as the *machaira* or *kopis* (the two terms becoming synonymous in time), and the spread of the use of the *falcata* among the many nations with whom the Greeks came into contact.

There is much iconographical, monumental, and historical, but not much material evidence of its employment in Greece, as but few actual specimens have been found there; whereas a very large number of examples have been found in Spain, where the documentary evidence is much less voluminous than in Greece. The combination of such abundant evidence of both degrees permits of a complete survey of the development and the employment of this useful weapon, which is still to be found represented, although under a modified form, in our own times by the yataghan of the Albanians, the Kabyle flissa, and other similar sabres.

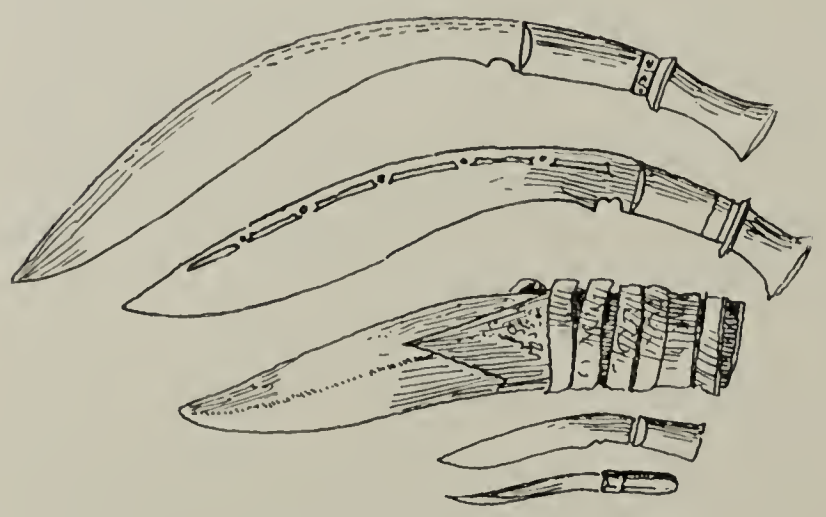


Fig. 15. Gurkha kukri.

The Gurkha kukri (fig. 15), so familiar as an implement in common use in Nepal, is often compared with the *kopis* of the Greeks and the *falcata* of the Iberians, while undue and, indeed, misleading stress is laid upon the apparent similarity of outline of the two instruments, in order to group them together. There is, however, an important difference between them, for whereas the machaira developed into an efficient and elegant engine of war, the kukri, which is not of ancient origin, has remained essentially a chopper (fig. 15) or large, heavy knife, with which a very effective slash can be made at close quarters by the agile Gurkha soldier, but which could in no degree render the same useful services as the Greek and Iberian sabres. It offers, however, one interesting analogy with the *falcata*, but this has no connexion with the form of the blade. Its sheath, or scabbard, like that of the *falcata*, is provided with an arrangement for holding a small knife.

The machaira is first mentioned by Homer when he says (*Iliad* iii. 271) that 'Atreides put forth his hand, and drew the machaira that ever hung beside his

sword's great sheath'; and that (*Iliad* xi. 884) 'he stretched him there at length and cut with a machaira the sharp arrow from his thigh'; while in *Iliad* xviii. 597, he states that 'the girls had beautiful crowns and the youths machairas of gold hanging from silver baldrics'.

In these instances, however, there can be no doubt whatever that the machaira referred to was a knife used for ordinary purposes and not as a weapon of offence; and I will show, when I treat of the *espada falcata* in the Iberian Peninsula, that the Iberians had the identical custom of attaching a knife to their 'sword's great sheath'.

The next historian to mention the machaira, so far as I am aware, is Herodotus (ii. 41), who tells us that 'no native of Egypt... would use the knife (machaira) or spits or cauldron of a Greek, or taste the flesh of an ox, known to be pure, if it had been cut up with a Greek machaira'. In this instance, again, the machaira referred to was a knife and not a sword, and many cases could be cited which point to the constant employment of the machaira and the *kopis* as domestic implements and for other ordinary uses in classical times.

It was, however, in the interval between the time of Homer and that of Herodotus that the machaira or *kopis* was adopted by the Greeks as an implement of war; and it will not, I think, be difficult to define approximately the date of the change.

It had, however, in all probability been in use as a weapon of attack by Asiatic peoples before the change took place in Greece itself. Indeed, the earliest representation of a machaira-sword or *falcata*, so far as my researches go, is to be found on the Harpy tomb in the British Museum, which came from Xanthos in Lycia. 'The people of Lycia were themselves a non-Hellenic race, and in 545 B.C. they were conquered by Persia. The sculptures, however, of Xanthos are distinctly archaic Greek works. In the Harpy tomb we have a fine example of the work of the Ionian School which may be placed soon after the middle of the sixth century' (30). At that period, viz. the middle of the sixth century B.C., the Greeks, so far as can be gathered from historical records and the evidence afforded by numerous Greek vases of the time, were exclusively using a straight sword with a blade not unlike that of the Aguilar de Anguita example shown in fig. 12. These Greek swords have a characteristic crutch-shaped pommel. I give an illustration of two of this type of sword in fig. 17 *c* and *d*, and of two daggers, *a* and *b*, of the same period, all of which have been copied from the Greek vases of the sixth century B.C., classified 'black on red'. The machaira is frequently represented on vases of this style and period, not as a fighting weapon, but in connexion with its use for domestic and non-combative purposes, as shown for instance in fig. 16, which represents two cooks preparing a

tunny for the kitchen (taken from Gerhard, plate CCCXVI). Here the machaira much more closely resembles a kukri than a *falcata*. I know, so far, of only two instances of 'black on red' vases (one a vase in the Imperial Museum of Antiquities in Vienna, and the other a vase in the Louvre Museum in Paris) where the machaira can be distinctly defined as a weapon of offence. Swords of odd and unusual forms are sometimes illustrated on 'black on red' vases, but not the *falcata*, except in the very rare instances which I have mentioned. The Greeks at that period were using a straight sword.



Fig. 16. Cooks preparing tunny with machaira-knife.

It was towards the end of the sixth century B.C. that a change took place in the style of Greek pottery, which passed from the 'black on red' to 'red on black'. The latter style reached its apogee in Greece during the first half, and continued on a high level until the end, of the fifth century. It was during this period that the finest examples of the ceramic art that the world has seen were produced. They have never been surpassed in elegance of design, in artistic feeling, or in the accuracy of the execution of the pictures that decorate them. We cannot do better than turn to these admirable illustrations of the life and thought of the Greeks in their varied phases for guidance as to the weapons they used; and when we do so we find that a change took place in their swords which was contemporaneous with the change in the style of their pottery. The



Fig. 17.

a, b, c, d, e. Daggers and swords from Greek vases, 'black on red'. *e, f, g.* Swords from Greek vases, 'red on black'.
h, j. Amazon and Greek warrior wielding machaira-sword. *k.* Greek machaira found in Epirus; Carapanos Collection, Athens.

straight sword, which they still used and never discontinued to use, became a more refined and doubtless a more efficient weapon with a pommel and grip of elegant design and the addition of a cross-bar at the shoulder of the blade, which added defensive to its offensive qualities (fig. 17, *e*, *f*, *g*).

But a still further change took place in the equipment of the Greek warrior in the early part of the new period, or within the first half of the fifth century B.C. He had become accustomed to the use of the machaira as a *falcata* or fighting instrument. It is represented over and over again on the 'red on black' vases of that time, and some of the greatest artists of that age, such as Brygos, Douris, and others, furnish us with graphic and realistic illustrations of the form and method of employment of that useful weapon. I am not the first to call attention to the fact that the machaira-*falcata* is represented on Greek vases, but those who have hitherto done so appear to have been under the impression that the Greek painters depicted it essentially as a weapon of the barbarians. This was not so. It is true that their foes, such as the Persians, the Amazons, and the giants, for instance, are represented as being armed with the machaira, but Greek warriors wield it too. I give illustrations on fig. 17, *h*, *j*, of an Amazon and a Greek warrior taken from the same well-known vase (Furtwängler and Reichhold,[1] Taf. 26 and 27), who are both wielding the machaira-sword. There can be no doubt whatever that the Greeks did make use of the *espada falcata*, that they began to do so early in the fifth century B.C., and that they continued to use it for a long period. This is shown by the very fine specimen of a machaira, which was found in the Epirus and which forms part of the Carapanos collection, now in the Museum at Athens (fig. 17, *k*). A bronze helmet, a knife, and an iron signet ring were found with the sword, and indicate the fourth century B.C. as the date of the interment.

That the machaira-sword was evolved from the machaira-knife there can, I think, be no doubt, but there is nothing to indicate that the evolution took place in Greece itself, and such evidence as is available points to the East as the source from which it came. But the exact period of its introduction is more difficult to determine. It was, however, approximately at the time of the transition in style and the appearance of the *falcata* on the vases that some of the most important events in the history of the Greeks were taking place: I refer to their wars with the Persians, which culminated in the battle of Marathon and ended with the battle of Plataea in 479 B.C.

I have already pointed out that the machaira was in use as a weapon of offence in Lycia in Asia Minor in the middle of the sixth century B.C., and that it was then an implement of war in the hands of Eastern peoples. I venture to suggest that it was during the conflict with the Persians, on the historical

[1] *Griechische Vasenmalerei*, München, 1904, Serie I.

occasions to which I have referred, that the Greeks learned to their cost and by actual experience how efficient and deadly an instrument it could be in clever hands, and that subsequently they adopted it themselves as part of their military equipment.



Fig. 18. Neoptolemus slashing Priam.

The *kopis* or machaira-sword was, however, essentially a cutting weapon in the hands of the Greeks and Persians, designed for the delivery of a slashing blow from the shoulder, as the vases show. Xenophon so describes it in his *De Re Equestri* (chap. XII, ii), written in the first half of the fourth century B.C., when he says: 'For offence we recommend the machaira rather than the straight

sword, since from the lofty position [of a horseman] the blow of the kopis will be more effective than that of the sword.'[1]

Fig. 18, taken from Furtwängler and Reichhold,[2] Taf. 34, clearly illustrates the action and the effect produced by the use of the machaira in the hands of a Greek. It represents Neoptolemus killing Priam.

I do not know of a single instance where a Greek, Barbarian, or Amazon is represented as using the point of the machaira; and for the very good reason that it had not then been provided with a point. This most important addition to the efficiency of the weapon as an implement of war was due to the Iberians.

I have already intimated that, like the Greeks, the Iberians acquired the *falcata* from extraneous sources and suggested that, in all probability, they derived it from the Greeks themselves. But on which of the many occasions of their coming into contact with the Greeks did they acquire it or learn its use as a weapon? No direct answer is possible. One can only venture upon surmises and draw inferences from them in the light of such historical data as can be counted upon, and they are few. There is, however, one to the point supplied by Xenophon. He tells us (*Hellenica* vii, c. 1) that when the Lacedaemonians were at war with the Boeotians in 369–368 B.C., Dionysius the elder, Tyrant of Syracuse, twice sent troops to the assistance of the former, and that on the first occasion there were Iberians among the foot-soldiers. The *falcata* may possibly have reached them through the Greek colonies established along the east coast of their country; but those colonies had been established some two centuries prior to the date I have given above, and the Greeks themselves had already been using the machaira-sword for a century before there is any evidence of its employment towards the middle of the fourth century B.C. by the Iberians themselves. But when the Iberians did obtain the *espada falcata*, from whatever source it may have been, they turned it to such good account that it became their principal implement of war, and, in their hands, one of the most efficient weapons of ancient times, if reliance is to be placed on the numbers of examples found within their territory, on the references to it in their history, and on the innumerable instances in which it is represented on the coins, monuments, statuary, and images which have come to light in the country.

The Iberian *falcata* (fig. 19[3]) is in reality a short sabre, although I will call it a 'sword' for convenience, as 'we are accustomed in England to call any cutting and thrusting weapon by the general term of a sword, irrespective of its form

[1] Xenophon, the best of all authorities, here definitely identifies the *kopis* with the machaira. I am indebted to Mr. E. J. Forsdyke of the British Museum for this note and for the correct rendering of the quotation from Xenophon.

[2] *Op. cit.*

[3] From the collection of Spanish armour belonging to M. Georges Pauilhac, of Paris.



TYPICAL *ESPADAS FALCATAS*

1. From Fitzwilliam Museum, Cambridge.
2. From Musée du Louvre, Paris.
3-6. From British Museum Collection.
7. From Canon W. Greenwell's Collection.

Published by the Society of Antiquaries of London, 1913

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or the purpose for which it is intended'. It was forged in one piece of iron or steel. The hilt is in fact the tang widened, so as to afford a support for the 'scales', and brought round to form the pommel and so, in a certain measure, to protect the hand. A small bar sometimes closed the opening and completed the guard, probably in the earlier and perhaps more elaborate examples (pl. XIV). Where the bar was not employed, it was almost invariably replaced, as a survival perhaps, by a small chain, or leather thong, the attachments of which can clearly be seen in the small rings at the terminations of the two branches of the hilt in examples 1, 2, 6, and 7 illustrated on pl. XIII. The pommel not infrequently terminated in a small shield to which one of the rings was attached, but speaking generally it represented in general outline the head of a bird, terminating in a conventional representation of the beak, as will be shown later on. The back of the blade forms a graceful

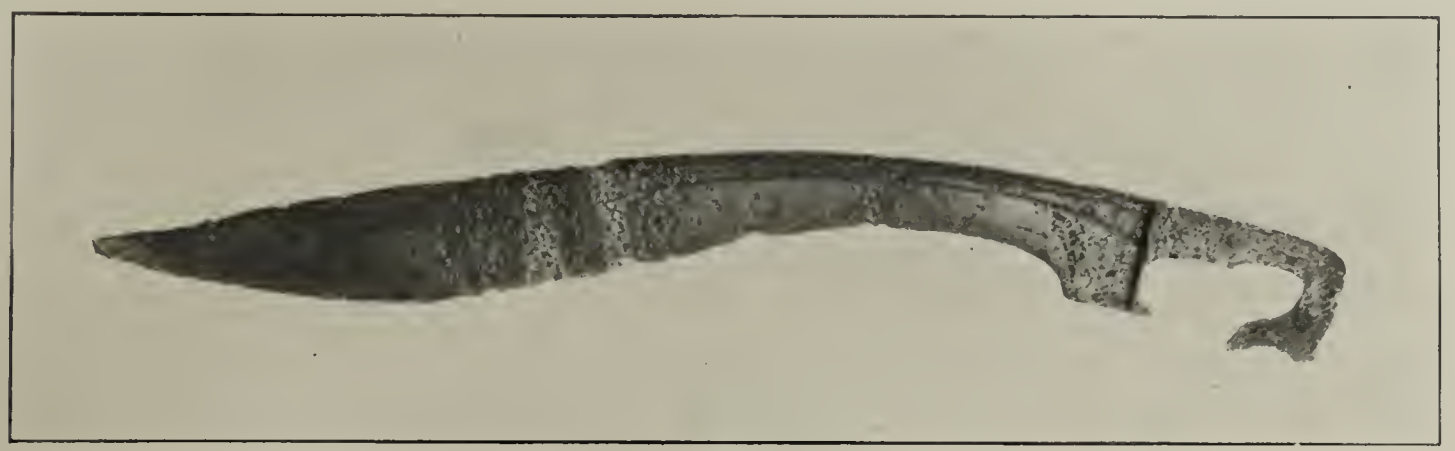


Fig. 19. Iberian *espada falcata*.

curve with the hilt, while flattening somewhat towards the point (pl. XIII, 5). The shoulder was square to the blade and broad at its base, from which the cutting edge started with a sharp rise towards the back for about a third of its length and thence took a sweeping ogee curve to the point. Two light shoulder-plates, which are readily distinguishable on all the examples shown on pl. XIII, with the exception of no. 4, served to hold the 'scales' in place and to complete the hilt, which afforded an unusually firm grasp for the hand. The 'scales' were usually of wood, bone, or of some other perishable material, but an exception is to be found in the particularly fine example of an *espada falcata* which is illustrated on pl. XIV. The back was left broad for a third of its length in order to strengthen the blade where it was weakest, while the blade itself was decorated with grooves or furrows which served to lighten it and to add elegance to its appearance. The grooves were probably made with tools or swages while the blade was being manufactured, the ribs that separated them being worked up with a file. The ribs and furrows, which are to be traced on both sides of every example of

the *falcata* that I have examined, harmonize with the general contour of the blade with pleasing effect.

But it is in connexion with the point of the sword that the Iberians showed their skill as swordsmiths and their intuition as fighters at close quarters by introducing an improvement which added incalculable advantages to their *falcata* as an implement of war. They brought the cutting edge round the point and continued it along the back for about a third of the length of the blade. They were consequently able to use it both for cutting and thrusting, as well as for a back-handed stroke if they desired. This was not the case with the Greek machaira nor with any other *kopis* or machaira which I have examined, and I have examined many, in another country (Italy) where it was extensively used in warfare.

The *falcata* proved to be such a formidable weapon in the hands of the brave people who improved it and used it so well, and it became so closely associated with them, that the 'Iberian sword' remained a byword in their history during many generations. Indeed, such was the reputation of the cutting and thrusting qualities of the Iberian *espada falcata* that historians in other lands and of different periods frequently make mention of it. For instance, Polybius mentions that the upper and lower rim of the shield of the Roman legionary was bound with iron to resist the downward stroke of the machaira, and the wear of resting on the ground; while Diodorus informs us that both the swords and the daggers of the Iberians were of such excellent temper that neither shield, helmet, nor bone could resist the cut of that sword. Nor would it be possible to bring better evidence forward as to the cutting power of the Iberian *falcata* than that which the old campaigner unwittingly gave when he said in answer to Caesar: 'I do not wonder, Caesar, at your not recognizing me, for when this took place I was unwounded, but at the battle of Munda my eye was struck out and the bones of my skull crushed. Nor would you recognize the helmet if you saw it, for it was split by a Spanish machaira!' (Seneca, *De Beneficiis*, v. 24).

Polybius, Livy, and Strabo all concur in their description of the method of attack of the Iberians, who, after throwing their javelins from a distance and exhausting their supply, drew their swords—their short sword, which could equally well be used for cutting or for thrusting, in contradistinction to that of the Gauls, which could only be used for cutting and at 'arm's length'. Diodorus mentions, indeed, that the Gauls of Iberia recognized the superiority of the Iberian weapon and discarded their national arm in favour of that of the people whom they had conquered; and there are several references in history to the use of the machaira by that warrior nation. The Iberian, who carried a light shield, closed in with his enemy after drawing his sword and endeavoured to get under his guard and to use the point. When cutting he aimed at the jugular

vein, and if his stroke did not get home the keen false edge at the back of the blade afforded him an opportunity of effecting his object or of mutilating his enemy on 'recovering'.

I have already referred to the Iberian *espada falcata* as being of steel, a statement which need not cause surprise, as it is a well-known fact that the Greeks, and Eastern nations too, were acquainted with the method of tempering steel. Homer describes the process when he says (*Odyssey*, Book IX) that 'the smith plunges into cold water a loud hissing great hatchet or adze, tempering it, for hence is the strength of iron'.[1] The Iberians were clever and experienced smiths and forgers of iron and steel, and they were undoubtedly acquainted with the simpler metallurgical processes, the knowledge of which enabled them to produce implements of war of the highest quality. Their skill as artisans and the excellence of their manufactures spread far beyond the borders of their own country. Diodorus (V, ii) tells us that the Iberians buried the iron sheets out of which they manufactured their swords, and Martial, who was born at 'lofty Bilbilis renowned for horses and arms' (*Epigrams*, Book I, xlix), recommends Licinianus to 'brace up' in the waters of the *Salone qui ferrum gelat.* Suidas, who lived probably in the second half of the tenth century A.D., and who wrote his encyclopaedia several centuries after the end of the period with which I deal, and thus necessarily could but gather together and put on record references to events that had long previously occurred, tells us that the 'Romans adopted the method employed by the Iberians in making their swords, but they could by no means imitate the excellence of the iron and the process generally'—iron which the Iberians were able to procure from the rich deposits of iron ore of Viscaya, Guipuzcoa, Asturias, Galicia, Sion, Cuenca, Serrania de Ronda, and Catalayud(31).

But it is not only to history that we must look nor to surmise that we must turn in order to prove that the *espadas falcatas* of the Iberians, and many of their other weapons no doubt, were made of steel, since evidence of their familiarity with metallurgical processes and the excellence of the results obtained is afforded by the sword itself. Our fellow Professor Gowland has been good enough to cause one of the *espadas falcatas* in my possession to be examined at the Royal School of Mines with most interesting and highly important results. A triangular piece was cut out from the back of the sword and examined and photographed, with the result that the outer part was shown to contain carbon to the depth of about one-eighth of an inch. The proportion gradually diminished until, in the centre, there was no trace of carbon at all. 'The implement had therefore been case-hardened, the martensite having changed to fealite by

[1] This is very decisive, as iron treated in this way would not be tempered or improved in quality. I am indebted for this note to Mr. Parker Brewis, F.S.A.

age (martensite being unstable). There seems to be no doubt that the above hypothesis is correct. The carbon-contents are approximately thus':[1]

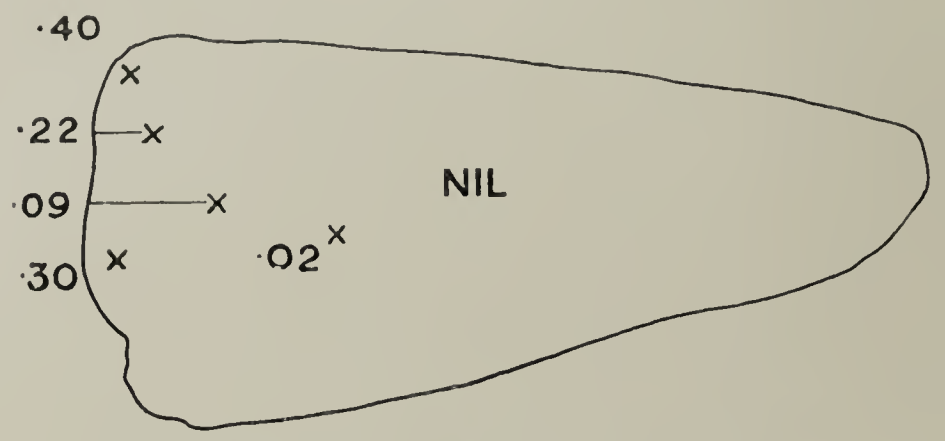


Fig. 20. Diagram showing carbon contents of *falcata*.

Professor Gowland tells me in reference to the above report that 'it would appear that some kind of case-hardening or cementation was practised in early times. This has not been observed before and I have not yet found any reference to it in the work of any ancient writer.'[2]

The Iberian *falcata* did not vary much in general form, although instances occur of marked differences in the finish of the weapon. Some have the 'forward throw' or cutting power accentuated by a sharper dip of the curve towards the point (pl. XIII, no. 7), while in others the penetrating qualities of the instrument have been increased by a break in the curve of the back and the accentuation of the false edge (pl. XIII, no. 2). Others, again, were of inferior workmanship with irregular grooves and ribs, which were but ridges forced up by the swage. No. 1 on pl. XIII has shoulder-plates of sheet iron, while no. 4 had a grip so worked out of the metal that it became too weak to resist the shock of a blow, which caused it to break in two. The parts were subsequently welded together and the hilt made good again. Other examples are illustrated on pl. XIII. I am indebted to the courtesy of the authorities of the British Museum for permission to reproduce nos. 3, 4, 5, and 6, and I have often admired the acumen and foresight of the late Sir Wollaston Franks in securing such exceptionally fine specimens for our national collection at a time when but little was known about these weapons and their provenance was obscure. Wooden scales have been added to no. 7, which is in the possession of Canon Greenwell, in order to complete the hilt.

The finest specimen of the *espada falcata* that has yet come to light in Spain, and it is extremely improbable that we shall see its equal in that country, is reproduced in natural colours on plate XIV *a*. It is now in the Museo

[1] Extract from a letter dated Aug. 31, 1909, from E. A. Wright to Professor Gowland.
[2] Letter to H. Sandars of Dec. 3, 1909.

Arqueológico in Madrid, where it is registered as no. 10475, 'sin procedencia.' It may possibly come from Almedinilla, where there was an important Iberian necropolis. It affords a very good example of the degree of perfection to which the art of the swordsmith in Iberia had risen. The decorative work was centred on the shoulder-plates and on the hilt, which was provided with an outer casing of wrought-iron work delicately executed and with an elegant design of open-work which permitted the lining or scales, which were probably of ivory, to be seen. Where the hilt was brought round and the pommel began, the conventional termination in the form of the crest and head of a bird was carried out with the happiest effect by a charmingly conceived and delicately modelled feline head, probably that of a lioness, also of iron, grasping between its teeth the bar which closed the guard. A delicately marked pattern, with



Fig. 21. Spear socket, with inlay.



Fig. 22. Spear socket, with silver inlay.

silver inlay, adorned both the shoulders and the grip. The effect is pleasing and the whole composition harmonizes gracefully with the flowing lines of the blade. The blade itself was longer and heavier than is usually the case with the Iberian *falcatas*, and when complete it must have measured, from the pommel to the point, about 63 cm. (say 25 in.). It had been broken near the centre in former times and subsequently mended by welding and riveting. The sword offers, moreover, another peculiarity. The 'back' extended from the shoulder to the tip, or, in other words, there was no point, and the weapon consequently could not be used for thrusting ; it is the only positive instance I know of a *falcata* found in Spain following without variation the lines of the Greek machaira. Indeed, were the *falcata* I have just described alone as an example of high development of the swordsmith's art, I should have been inclined to doubt its being of home production, but there are other cases where delicate ornamenta-

tion (pl. XIV *b*) and inlay with silver in scrolls and spirals on the blade itself have been found in Spain; and there are many instances, to my knowledge, where the sockets of spears are decorated in a similar manner, the inlay being sometimes composed of more than one metal, as shown in fig. 21, from the collection of M. Louis Siret at Villaricos, and sometimes of silver, as in fig. 22, from that of D. Pascual Serrano of Alicante.

The dimensions of the Iberian *falcatas* did not vary materially. They were, as I have already mentioned, short 'swords', while in some cases, although few, they scarcely exceeded the length of a dagger. Generally speaking, the length of the blade (measured from the shoulder-plate to the point in a straight line) varied from about 44 cm. ($17\frac{1}{2}$ in.) to 48 cm. (19 in.). The shortest blade I have measured is in the Museum at Córdoba—it is under 35 cm. (14 in.) in length; while the longest, which measures 52 cm. ($20\frac{1}{2}$ in.), belongs to the decorated *falcata* which I have described above and illustrated on pl. XIV. The hilts of all the *falcatas* that I have examined, and I have had the opportunity of handling a large number, show remarkable uniformity in form and dimensions. The form practically never varies from that described, while the length from the outside of the shoulder-plate to the outside of the curve of the hilt is in the majority of instances 11 cm. ($4\frac{1}{4}$ in.). The opening for the hand is almost invariably 8 cm. ($3\frac{1}{8}$ in.). Sometimes the length of the hilt reaches $12\frac{1}{2}$ cm. (say 5 in.), and in this case the opening may possibly be 9 cm. ($3\frac{5}{8}$ in.). These slight variations in the length of the hilt and in that of the opening (rather less than half an inch) are quite independent of the breadth of the blade, which, in its widest part, is generally 5 cm. (2 in.) broad. The total length of the swords from the outside curve of the hilt to the point varied as a rule from about 55 cm. to 63 cm. ($21\frac{1}{2}$ in. to 25 in.). When the 'scales' were in place the useful portion of the opening of the hilt would be somewhat reduced and the effective space for the hand would probably be limited to 7 cm. ($2\frac{3}{4}$ in.). This is practically the same space as that afforded by the grip of the antennae sword. Indeed, the dimensions of the hilt in both swords are practically the same, viz. 11 cm. in total length and 7 cm. in the opening.

The length of the grip of a sword should not be taken as a criterion of the size of the hand of the warriors who used it nor the inference drawn from its size that they were small-handed people. 'It is a mistake to judge of the size of a man's hand by the size of the opening of the hilt.' It was all-important to the wielder of a *falcata* that he should have a firm and fast grip of the implement, in order that he might not only deliver a slashing blow but apply the drawing cut too.

I have already referred to the form usually imparted to the pommel of the *falcata*, and mentioned that in general outline it resembled the head of a bird.



a *a* *b*

SPANISH MACHAIRAS (*ESPADAS FALCATAS*) FOUND IN SPAIN

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I have no hesitation in saying that it does take that form, that the form can be traced to its source in Greece, and that it probably came to the Iberians with the machaira, which they derived from that country. I will now endeavour to prove this, but in order to do so I must again refer to the 'red on black' vases, and more especially to those of the finest period of the fifth century B.C.

I have examined a great many Greek vases, and I can say with assurance that when the pommel of a machaira shows attempts at ornamentation it invariably takes the form of the head of a bird. Figs. 23, 24, 25 (35) represent the hilts of three machairas chosen from many illustrations of the subject. Indeed,



Fig. 23.

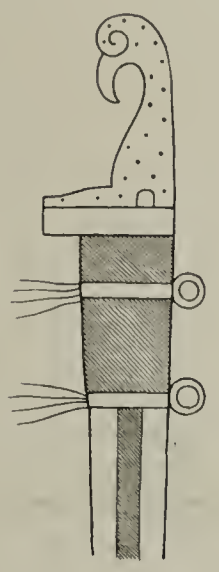


Fig. 24.



Fig. 25.

Greek machairas with hilts terminating in birds' heads.

some of the greatest of the Greek ceramic artists used this graceful motive as an appropriate termination for the curved sword. There can be no doubt as to what the artist intended to represent. It was a bird's head and it could be nothing else. But it might be objected that the bird's-head termination was solely due to the imaginative faculties of the artist were we not fortunate enough to possess the beautiful specimen of a machaira shown in fig. 17, *k*, found in the Epirus, to point to as actual evidence bearing out my contention.

There can be no doubt as to the intention of the Iberian swordsmith. He endeavoured to perpetuate, although in a somewhat conventional manner, the tradition which had come to him with the Greek machaira. Fig. 26 (*a–f*) is given in illustration of my point: *a* represents the pommel of the Greek machaira from the Epirus; *b*, the hilt of the Iberian *falcata* shown on pl. XIV; *c* is

taken from a specimen in the British Museum (pl. XIII, 6); and *d–f* from other *falcatas* in the Museo Arqueológico at Madrid. Some of the examples are unquestionably conventional, but although the crest may be accentuated and the finer outlines of the beak be hidden in the broad termination of the pommel, the main idea and general outline are preserved throughout. Even in the case of the very fine specimen of the *falcata* shown on pl. XIV, *a*, the artist followed tradition, although perhaps unconsciously, and while accentuating the crest and substituting for the beak a feline head, he gave to his *chef-d'œuvre*, on the whole, the accustomed outline.

The pommel, or grip, of the Iberian *falcata* is usually described as taking the form of a horse's head. This unfortunate definition is not based upon any

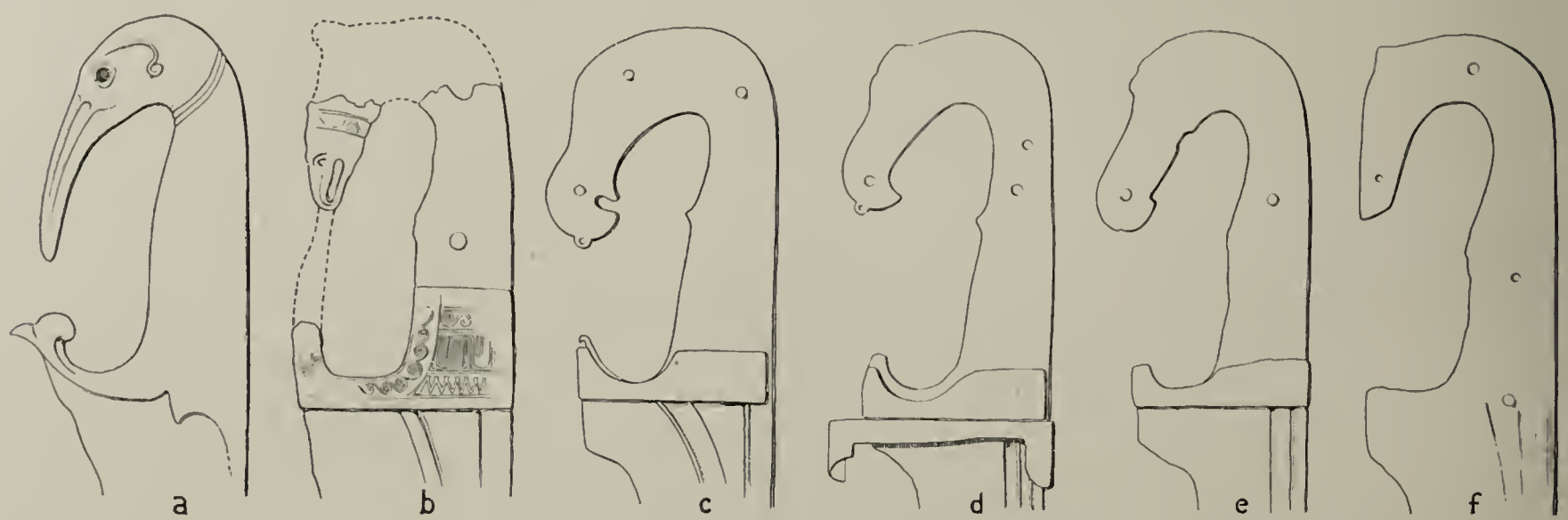


Fig. 26. Greek (*a*) and Iberian (*b–f*) machairas, with hilts terminating in forms of birds' heads.

material evidence. It apparently arose from an idea that as the Iberians were 'fond of horses', they adopted a horse's head as the motive for the lines of the end of the pommels of their swords!

The scabbard of the *espada falcata* was generally made of wood or of some other perishable material, as is the case with the antennae swords. Fragments of iron scabbards were, however, found at Almedinilla (36). The remains of the iron rim or border which held together the back and front of the scabbard have often been met with. Two transverse bands of metal, one of which was placed at about one-third and the other about half-way down the length of the blade, served to strengthen the scabbard and to support the rings which attached it to the belt of the wearer. Two bands are illustrated in figs. 27 and 28. They are both upper bands. The upper band of the scabbard differed from the lower band in that it projected on one side of the scabbard, whereas the lower band lay flat on both sides. The projection served an interesting purpose, viz. to hold a small knife in a convenient position at the side of the scabbard. Sñr. Maraver,

who carried out the excavations at the Almedinilla necropolis, where a large number of Iberian weapons were discovered, calls particular attention to this feature of the scabbard bands, which also applied to the sheaths of all the daggers he found. Sñr. Maraver describes the projection on the first band as being sometimes semicircular and sometimes quadrangular, but it was always more spacious than that of the second band so that the knife might be thrust into it up to the handle, from which one would infer that the point of the knife sometimes rested in the lower band. In some cases the knives which I have illustrated in fig. 29, measuring about 8 inches long from end to point, were found still in place.[1]



Fig. 27. Scabbard strap.



Fig. 28. Scabbard strap.

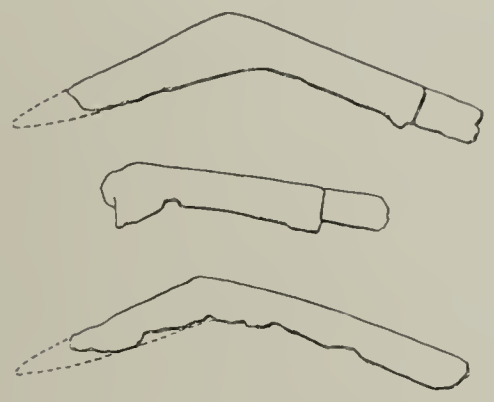


Fig. 29. Iberian knives.

But the Iberians were neither the originators of, nor the last people to adopt, this custom of attaching their knives to their sword sheaths. As I have already pointed out in a previous part of this paper, Homer refers to the practice when he states that Atreides put forth his hand and drew the machaira (a knife in this instance) which ever hung beside his sword's great sheath; while we find it continued to our own times in the case of the Gurkha kukri (fig. 15).

The Iberians, like the Greeks, wore the *falcata* on the left side, unlike the Gauls and the Romans, who wore their swords on the right side. The scabbard was attached by straps to the belt and was not suspended from a baldrick, as was the case with the Greeks. Fig. 30 represents the statue[2] of an Iberian warrior discovered at Osuna by MM. Engel and Paris (37), which is now in the Salle Ibérique at the Musée du Louvre in Paris. It is unfortunately much mutilated, but sufficient of the figure has been preserved to show the drawn *falcata* and part of the scabbard with one of its iron bands and ring, and the strap attaching it to the belt. When the *falcata* was not worn suspended from the belt, it was passed through the *faja* or girdle and so held conveniently

[1] The Marques de Cerralbo has recently found an antennae sword in an iron scabbard with a small knife still held in place by the upper band.

[2] By kind permission of the authorities of the Musée du Louvre in Paris.

in place. There are several examples of this method of carrying the weapon, but the best are probably the two which are illustrated in this paper, viz. one on pl. XX, *c*, which reproduces the statuette of the Iberian horseman found at Despeñaperros in the Province of Jaen (4), and the other on pl. XV, which reproduces a vase found by D. Enrique Salas near Archena in the Province of Murcia, now in the possession of the Junta para Ampliación de Estudios of Madrid. One of the warriors carries a curved sword or *falcata* somewhat conventional in form, which could only have been passed through his belt on the left-hand side of his body.



Fig. 30. Statue from Osuna showing sword-belt.

This remarkable specimen of Iberian ceramic art merits consideration in connexion with the subject-matter of this paper, as its main scheme of decoration represents a series of single-handed combats between Iberian warriors.

The vase (pl. XV and XVI) is typically Iberian in style, in colour, and in form, but it is unusual in size (it measures 16 in. in height by $14\frac{1}{4}$ in. in diameter, while the opening is $12\frac{1}{2}$ in. wide) and unique in the scenes it represents. Pl. XVI reproduces the complete picture as it develops around the body of the urn. The figures are crude in design and almost infantile in execution, but the Iberian craftsman who was the author of this remarkable composition leaves no doubt in the minds of those who contemplate his work as to what it was that he desired to portray, which I would venture to describe as the 'Interrupted Boar-hunt'. In the centre of the composition and beneath a panel of wavy lines, so characteristic of Iberian pottery, are two wild boars apparently at bay, one of which has already been transfixed by a spear. A dog stands at a safe distance away, barking fiercely and apparently undecided as to which party he should join. To the right of the boars a soldier or sportsman on foot awaits the attack of a mounted horseman. Another horseman advances at a gallop from behind the



IBERIAN CINERARY URN; DESIGN DEVELOPED ON PLATE XVI

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boars, but whether with the object of repelling the onslaught of the first horseman (there are but two horsemen and horses in the composition) or of piercing the foot-soldier through the back, it would be difficult to say. Both horsemen are armed with a spear (can it be the *soliferreum*?) and sit sideways to their horses (like the horsemen on the coins of Tarentum). They do not carry shields, the left hand being employed in gathering up and holding the reins. The horses have a saddle-cloth, and their necks, in both cases, are protected by wickerwork shields. These remarkable details in the trappings of the steeds should not be attributed to the fancy of the artist who painted them. They were undoubtedly copied from real life, my reason for saying so being that the mouths of both horses are fitted with a curved bit of peculiar form which, although it was in all probability introduced from abroad and possibly from Etruria, became, as I will subsequently show, the typical Iberian bit during the period which I am now reviewing. The warrior on foot to the right of the boars and between the horsemen is armed with a spear in his right hand, while he carries a shield made of wickerwork and presumably covered with hide in his left hand. His shield is broad and long, and would cover about two-thirds of his body. The remaining group, behind the first horseman, is composed of two men engaged in a fierce personal encounter. The one on the extreme left is apparently armed with a curved sword, with which he is trying to deliver a blow, while his opponent holds in the left hand a spear which he is about to thrust into his adversary's throat. Under his left arm, and attached to his side without doubt, is an *espada falcata*, somewhat conventional in regard to detail, but unmistakable in its general form. Both men hold wickerwork shields in their left hands. The dress of the warriors is also peculiar. It appears to be very tight fitting and open at the chest. Indeed, it is so tight fitting that were it not that the girdle or *faja* distinctly passes underneath the dress, one would be inclined to surmise that the bodies were painted and not clothed. This might further be deduced from the square white patches on the lower part of the legs of the men on foot, which so forcibly remind one of the Zulus in Natal who to-day adorn their swarthy lower limbs by painting patterns in white upon them. The warriors on foot have beards, whereas those on horseback have not, nor indeed have they the distinctive white patches on their legs. Can they be meant to represent Amazons in deadly conflict with Iberian heroes? The dead lie strewn along the ground.

This extraordinary urn, which gives the only pictorial representation of Iberian warriors that is known, was found to contain the remains of a body that had been cremated. It is not possible to date it even approximately, but it was probably executed in the latter part of the period with which I deal.

The *espada falcata* has been found in so many places widely distributed over the Iberian Peninsula that it may be said to have been in common use among

most of the tribes inhabiting that country. It appears, however, in greater numbers in the eastern and more especially the south-eastern portion of the country, and within a territory comprising the modern provinces of Alicante, Murcia, Albacete, Granada, Córdoba, and Jaen, the former countries of the Contestani, the Bastitani, and the Oretani. Its traces are to be found across the continent to the Atlantic Ocean, as examples have come to light in Caceres and at Alcacer do Sal in Portugal, and I have no doubt whatever in many other localities too; but little attention has hitherto been given to this particular line of research, and 'bits of old iron', uninteresting in appearance and of no intrinsic value, are apt to be thrown away. I append at the end of this paper a list of the names of the places where the *espada falcata* has, so far, been found.

The two most important discoveries of *falcatas* that have hitherto been made are those of M. Louis Siret at Villaricos (the ancient Baria) and of Sñr. Maraver at Almedinilla, about 31 miles to the north-west of Granada and on the confines of the provinces of Jaen and Córdoba.

M. Siret's researches (32), although not so prolific in examples of this sword as those of Sñr. Maraver, are the more important of the two, not only by reason of the minute and intelligent care exercised in carrying them out (Sñr. Maraver may have been equally careful), but also because the whole of the finds have been kept together. M. Siret has published an account of his investigations in the *Memorias* of the Academia de la Historia of Madrid (1907), and I am indebted to him for a further description of his discoveries and permission to reproduce some of the illustrations from his work.

M. Siret began investigations some years ago on the site of a cemetery which formed a group in itself. This he calls the 'third group' in order to distinguish it from the first and second groups which were connected with older cultures, and which are characterized by other burial rites and by their association with pottery of a different order and objects of another character, such as ostrich eggs, strigils, &c. Some 125 graves were opened by M. Siret in Group 3, and in several he found examples of the *espada falcata* offering in themselves no variations from the usual type, but which were rendered interesting and important through their association with objects imported from abroad and thus supplying valuable evidence as to the approximate dates of the burials. Besides the *falcata* M. Siret found daggers, spears, *soliferrea*, and the bosses and handles of shields, as well as other weapons characteristically Iberian.

I have grouped in fig. 31 various objects from some of the graves which almost exclusively contained cinerary urns of various forms. The numbers refer to those of the interments on M. Siret's register. No. 48 represents an important group, in that the *falcata* was found associated with an Iberian fibula of the Despeñaperros type, with Greek vases similar to those illustrated on pl. XVII, 2,

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Fig. 31. Objects from necropolis at Villaricos, reproduced by permission of M. Louis Siret.

containing the ashes of the deceased and with a krater like the one shown on pl. XVIII, *f*, which is an indigenous imitation of the type of Attic vase (pl. XVII, 1) found by M. Siret in the same cemetery, but isolated and not in a grave. The claw of a small crab was also found with the *falcata*. It was probably a talisman. It is interesting because similar objects have been discovered in interments at Carthage and with neolithic burials at Mojáca in the province of Almeria. The other arms found with this interment were a spear-head and the boss and handle of a shield. The *falcata* had been bent at the time of the burning of the body and it could thus be placed inside the urn. Generally speaking, however, the sword was left unaltered and was placed in contact with the outer side of the urn containing the ashes. Nos. 43 are from another interment which produced a *falcata* with an 'Iberian' cinerary urn, finger rings, and the head of a *soliferreum*. Nos. 37 are from another burial, and among the objects it produced were two amulets of enamelled earthenware representing Egyptian deities and a scaraboid seal with figures showing Egyptian motives. The other objects illustrated on the same page are all from the same cemetery and were directly associated with Iberian weapons. M. Siret also found a stele with a Punic inscription in this cemetery.

M. Siret, who continues to prosecute his researches at Villaricos, has within the past two years made further discoveries of *espadas falcatas*, but in a different part of the ground from that in which was situated the cemetery with the Greek vases to which I have just referred. He found them associated with another class of grave furniture in two tombs in the form of crypts, in which inhumation and cremation burials had taken place. The furniture comprised many ostrich eggs (six to seven intact and more than twenty broken), several coins (two Punic and one struck at Emerita), and the remains of a bronze helmet, to which I shall refer subsequently.

M. Siret designates these interments as 'Punic' in contradistinction to those of the cemetery which produced the Greek vases, which he calls 'Ibero-Punic'; and in the case where he found a burial by inhumation associated with a *falcata*, a spear, a javelin, and a portion of a *soliferreum* together with an ostrich and a hen's egg, he appears to be justified in doing so. But weapons of any form have been so rarely found by him in connexion with burials in the 'Tyrian' and 'Punic' sections of his prolific field of investigation, that the 'Greek vase' cemetery which did produce a large number of weapons should be taken as the criterion of their form and date. The form is well defined, and in the case of the *espada falcata* the type is that of the Iberian variety which I have already described so fully. With regard to the date, important evidence can be derived from the Greek vases, which consist of the Attic krater which was found containing ashes, but isolated (pl. XVII, 1), and of the bell-shaped kraters, several



2 (52)



3 (52)



1



4 (52)



4 (52)

GREEK (ATTIC) VASES USED AS CINERARY URNS:
FOUND BY M. LOUIS SIRET AT VILLARICOS

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of which have been found together with *espadas falcatas* and are illustrated on pl. XVII. All these vases are of Greek manufacture and were imported from Greece itself. The date of the Attic krater is usually assumed to be about 430–420 B.C. and that of the bell-kraters to be about 410-390 B.C.[1] So that, if a proper allowance of time be made for importation and for usage for ordinary purposes before they were employed as funeral urns, the middle of the fourth century B.C. may fairly be taken as the approximate date of the appearance of the *falcata* among the grave furniture of the Villaricos cemetery. The question of the length of the period during which the *falcata* was employed in this part of the peninsula is more difficult of solution; but M. Siret has found evidence which points to a long-continued use, since he discovered, in one of the interments within the group, an *espada falcata*, a spear-head, and the handle or grip of a shield in association with 'Arretine' (bearing the potter's mark ERRIM) and other Roman pottery. M. Siret has found a few coins in this and in the adjacent cemeteries, but they do not throw much light on the question of chronology. Indeed, in some respects they tend to confusion, as in the case of the coins of Emerita which have been found both in the Greek-vase cemetery and in the crypt containing a burial by inhumation, a *falcata*, and ostrich eggs. However, M. Siret is far too careful and experienced an observer to be at fault in any direction, more especially in a case such as that of the association of the *falcata* with Roman pottery, and although the instance was an isolated one we can but surmise, from the evidence afforded, that the *espada falcata* still survived as a weapon of offence among the Iberians in the south-east until well into the first century B.C., as it unquestionably survived in the north-west of the peninsula. M. Siret has, so far as I am aware, not yet found any La Tène type of sword in his part of Spain.

The next discovery of Iberian weapons to which reference should be made, the number of examples found even exceeding in importance M. Siret's discoveries at Villaricos, is that at the Iberian necropolis at Almedinilla, which lies near the village of that name on the high road between Alcala-la-Real and Priego at the confines of the provinces of Córdoba and Jaen, and at a point which must have been of considerable strategic importance in pre-Christian times.

The cemetery was originally investigated in the year 1867 by D. Luis Maraver (36), who discovered some 253 interments, a considerable number of which were those of warriors whose ashes (all were incineration interments with the exception of three) were accompanied by the weapons they had used. The weapons were typically Iberian and homogeneous in character, and consisted of *espadas falcatas*, lance and javelin heads, *soliferrea*, shield bosses and handles,

[1] I am indebted to M. Edmond Pottier of the Musée du Louvre for valuable guidance as to the provenance and date of these vases.

iron arrow-heads, horse-bits, &c. Sñr. Maraver also found in the same cemetery four prick-spurs, one of which was of bronze and the others of iron. MM. P. Paris and A. Engel have also carried out investigations at Almedinilla, but without adding anything of importance to the discoveries of Sñr. Maraver in so far as Iberian weapons are concerned (38).

The *espada falcata* predominated among the weapons. Sñr. Maraver makes mention of having discovered forty-four *falcatas*, but, in view of the number which I have myself examined in various museums and collections, and of the fact that most of the examples now to be found outside Spain came originally from this site, I incline to the opinion that many more than that number really came to light. Owing to the nature of the ground, both the arms and the other objects discovered were in an excellent state of preservation. There was nothing remarkable either in the shape or the size of the *falcatas*, which were of the ordinary Iberian type. In many instances the iron coverings of the scabbards were still attached to the *falcatas*, and, as I have already mentioned, the small knives which accompanied them still remained *in situ*.

Sñr. Maraver made careful note of the position in which he found the weapons in the graves, and it is interesting to learn that 'although most of the (small) objects were found inside the urns and jars mixed up with the ashes, the blades of the swords and knives [i.e. daggers] and the heads of the javelins and lances were always outside but in contact with the corresponding urn, and it frequently happened that, in order that they might with facility be inserted within the grave, they were doubled, and this especially applied to the iron darts [*soliferrea*] which were always found twisted in the form of a puzzle'. This method of interment may be applied generally to all the cases where weapons have been buried in Iberian cemeteries, and although in the instances where *falcatas* and spear-heads have been numerous some are found to have been bent, and sometimes, indeed, rebent so that the weapon occupied but a third of the space it would originally have required, most were found to have retained their original form.

D. Luis Maraver mentions that he found in all fifty-seven fibulae, but as he gives no description of them, and as I have not so far been able to examine any of them, I am unable to avail myself of their evidence in arriving at the date of the interments.

But if the fibulae were few and those few have been dispersed, it is otherwise with the pottery, of which a large and varied assortment was found and is still preserved in several of the Spanish museums. It varies in form but is homogeneous in type, and may be described, in a geographical and generic sense, as 'Iberian'. I have illustrated some typical examples of this type of pottery on pl. XVIII. The provenance of *a*, an excellent specimen, is not known, but *b*



a *b* *c*



d *e*



f



g



h



i

'IBERIAN' POTTERY. CINERARY URNS FROM THE ALMEDINILLA AND FUENTE TOJAR CEMETERIES

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and *c* come from a necropolis at Fuente Tojar, not far from Almedinilla, while the remainder (*d*–*i*) are all from the latter cemetery. It is interesting to find among the pottery from this site reproductions of the Greek Attic krater (*f*) similar to those discovered by M. Siret at Villaricos. All the vessels illustrated were used as cinerary urns.

Sñr. Maraver makes no mention of having found any Greek pottery in the cemetery at Almedinilla, although he distinctly states that he did not find any trace of Arretine (or 'Saguntino') ware there. He discovered no inscriptions.

Twenty-six bronze and two silver Roman coins were found at Almedinilla, but as no reference is made either to the objects (if any) with which they were associated or to the type of the coins themselves, they can be of but little assistance in establishing the date of the burials. Such evidence as they afford, however, should not be entirely neglected, and I therefore suggest that, in view of their being much more numerous than at Villaricos, and of the absence of any 'antennae' or indeed of straight swords (except in the one instance to which I shall presently refer), of any Greek vases,[1] or of any Punic ornaments or furniture in the graves, the Almedinilla cemetery should be placed in chronological sequence after that of Villaricos, and that it was in use during the third and second centuries preceding the Christian era, although the two cemeteries were in all probability contemporaneously occupied. It may possibly have still been in use during the first century or well into the time of the Roman occupation of Iberia.[2]

The only straight sword found at Almedinilla, so far as it is possible to judge by Sñr. Maraver's description, belongs to the La Tène type, and I so classify it when dealing with the swords of that form. This sword, moreover, constitutes a distinctive feature in regard to the two cemeteries of Villaricos and Almedinilla, since, as I have already mentioned, no weapon of this type has so far been found by M. Siret.

There have been other discoveries of *espadas falcatas* in the eastern portion of the Iberian Peninsula, such, for instance, as those of the Cerro de los Santos in the province of Albacete, from whence came the remarkable statues now in the Museo Arqueológico in Madrid (39), and those of D. Pascual Serrano at Bonete in the same province, where there was in all probability another Iberian necropolis, but in neither case do the discoveries throw any direct light on the chronology of the period. We must go still further north in search of chrono-

[1] M. P. Paris (38) found a small fragment of Greek pottery, the bottom of a bowl of the fourth century B.C., at the Cerro de la Cruz (about half a mile from the site of the cemetery), where the Iberians in all probability had a settlement.

[2] Maraver mentions that he found a colander of bronze with a handle terminating in the head of a bird in one of the graves.

logical evidence in regard to the use of the *falcata* in Iberia, viz. to Cabrera de Mátaro, about eighteen miles to the north-east of Barcelona, where D. Juan Rubio de la Serna investigated an extensive necropolis in the year 1881 (40). A considerable number of urns, cups, and vessels were discovered, as well as many iron swords, daggers, spear-heads, and some examples of the *soliferreum*. The swords in every case, whether bent or not, were placed in contact with the urns containing the ashes. Among the swords only one *falcata* was discovered, so far as I have been able to learn, although more were found in all probability. It lay in a grave crossed with a long and very fine spear-head, and in contact with one of the largest of the cinerary urns discovered. A javelin and a shorter spear-head were placed X-wise at each extremity.



Fig. 32. Pottery from necropolis at Cabrera de Mátaro.

The pottery associated with the *falcata* from Cabrera de Mátaro is of a different order from that of either the Villaricos or of the Almedinilla necropolis. Some examples are illustrated in fig. 32.[1] It is distinctly Greek in character, as we should naturally expect it to be from the close proximity of Cabrera to the important Greek settlements of Emporiae (Ampurias) and Rhoda; and it is by means of that pottery, some of which was evidently imported from abroad while much was the produce of local manufacture, that a date can be assigned to the interments. They in all probability are of the first half and middle of the third century.

A considerable number of bronze and iron fibulae have been found at Cabrera. Among them were some annular Iberian fibulae (Despeñaperros

[1] From the collection of D. Juán Rubio de la Serna.

type), but the generality were of La Tène I type. The majority of the swords, with the exception of the *espadas falcatas*, were also of La Tène form. Several coins have in more recent years been found on the same site. The majority are silver pieces of the autonomous type with Iberian inscriptions.

The chronological evidence in connexion with the use of the *falcata* in Iberia may briefly be summarized as follows:

It does not appear in the Iberian necropolis at Aguilar de Anguita, where the predominant weapon of offence was a short straight sword of iron of the 'antennae' type; nor does it appear in the Arcóbriga cemetery, where some 'antennae' swords have been found, but where the predominant weapon was, curious to say, a long straight sword of La Tène type.

The first positive evidence of its employment in Iberia is afforded by the Villaricos burials, where the Greek vases associated with it point to a date about the middle of the fourth century, and where one interment only connected its use with the first century preceding our era. Local imitations of Attic kraters were also found in that cemetery.

At Almedinilla no Greek vases have been found with the burials, and local imitations are rare. The pottery of the so-called Iberian type predominates, while no Roman pottery was discovered there. The coins found are reported to have been Roman without distinction of date or type.

All I have said may be but slender evidence to go upon, but it points on the whole, I think, to the third and second centuries B.C. as having been the period during which the *espada falcata* formed the principal weapon of offence of the Iberians in the south-eastern part of the Peninsula. The date of the Cabrera de Mátaro cemetery can, like that of the Villaricos necropolis, be more distinctly defined, and the Greek pottery found within it indicates the middle of the third century B.C. as being the period when the *falcata* was in use in that part of Iberia. But only one *espada falcata* was found there, whereas the other swords that came to light were, with few exceptions, of La Tène II type. The occurrence of the *falcata* among the straight swords may have been accidental, or it may indicate a survival, but whatever the cause of its presence the fact remains that it was in use in north-eastern Iberia in the third century.

We are thus enabled by the help of material evidence to trace the *falcata* in Eastern Spain through the fourth, the third, and the second centuries before our era, and probably in the isolated instance of Villaricos into the last century B.C.; while its employment in the peninsula generally during that century is affirmed by the testimony of Caesar's veteran as to the effect of a stroke from an Iberian machaira at the battle of Munda, as well as by the coins of P. Carisius, the legate of Augustus, which were struck in Spain about 23 B.C. to

commemorate the successful termination of the struggle for the domination of the stubborn tribes of the north-western portion of the country. These coins, indeed, close the record of the use of the *falcata* by the Iberians during the four centuries which preceded the Christian era.

La Tène Sword.

It is but a short time ago (in 1909) that M. J. Déchelette, whose competence and prudence in archaeological questions is so generally recognized, observed (3) that 'il est remarquable que jusqu'à ce jour aucune épée de la Tène n'a été signalée en Espagne ni en Portugal', and that 'l'épée de la Tène faisait défaut en Espagne et en Portugal'. But M. Déchelette's remarks should cause no surprise when one considers that until quite recently, whenever a straight sword was discovered in the peninsula, it was at once and without further reflection pronounced to be the mythical Iberian weapon which the Romans are so erroneously said to have adopted. Every point of the sword itself which might indicate the purpose to which it was put or the period to which it belonged was passed over, and if the blade was straight and it had been found in Spain it could but be the identical weapon which wounded *punctim et caesim* when in the hands of the Roman legionaries. I will endeavour to prove that the Romans did not adopt any Iberian sword as a weapon of offence.

It is again to the Marques de Cerralbo, whose work was so justly recognized by the award of the Martorell prize in 1912, that we owe it that attention has recently been called to the discovery of La Tène swords in north-central Spain.

As I have already mentioned (p. 220), one sword of this type came to light in the Aguilar de Anguita necropolis, where the prevailing type was the 'antennae' form. Its presence there may have been accidental, or it may possibly indicate that at some period the long La Tène type was working its way into Iberia, when, for example, the inconveniences of the 'antennae' sword were making themselves felt more and more in the methods of fighting which then prevailed. This assumption, for it can be but an assumption in the present state of our knowledge, may perhaps be said to take form as a consequence of the Marques's discoveries in 1911 in the necropolis at Arcóbriga, which lies in the same part of Spain as Aguilar de Anguita. Here he investigated a number of warriors' graves, with the result that the majority of the swords proved to be of the La Tène type (fig. 33), while the minority (four or five specimens) was of the 'antennae' type. This I venture to suggest points to transition—the transition from the short, dagger-like 'antennae' sword to a longer straight sword, the well-defined type of La Tène. Transition is moreover indicated by the grave furniture, which can, in some respects, be directly connected with that from the Aguilar de Anguita graves. The fibulae and other

objects found prove it however to have been, generally speaking, of a later period. But whether there was transition or not the fact remains that here the predominating type was La Tène, and as the cemetery was Iberian and showed no intrusion from outside the peninsula, as was undoubtedly the case with the Cabrera de Mátaro necropolis to which I am about to refer, I have included this type of sword among the weapons of the Iberians.

M. Déchelette, to whose great experience I bow, is of the opinion that the La Tène sword from Arcóbriga should be classified as La Tène I. I hardly like to differ from him, but I can myself see so little difference between the

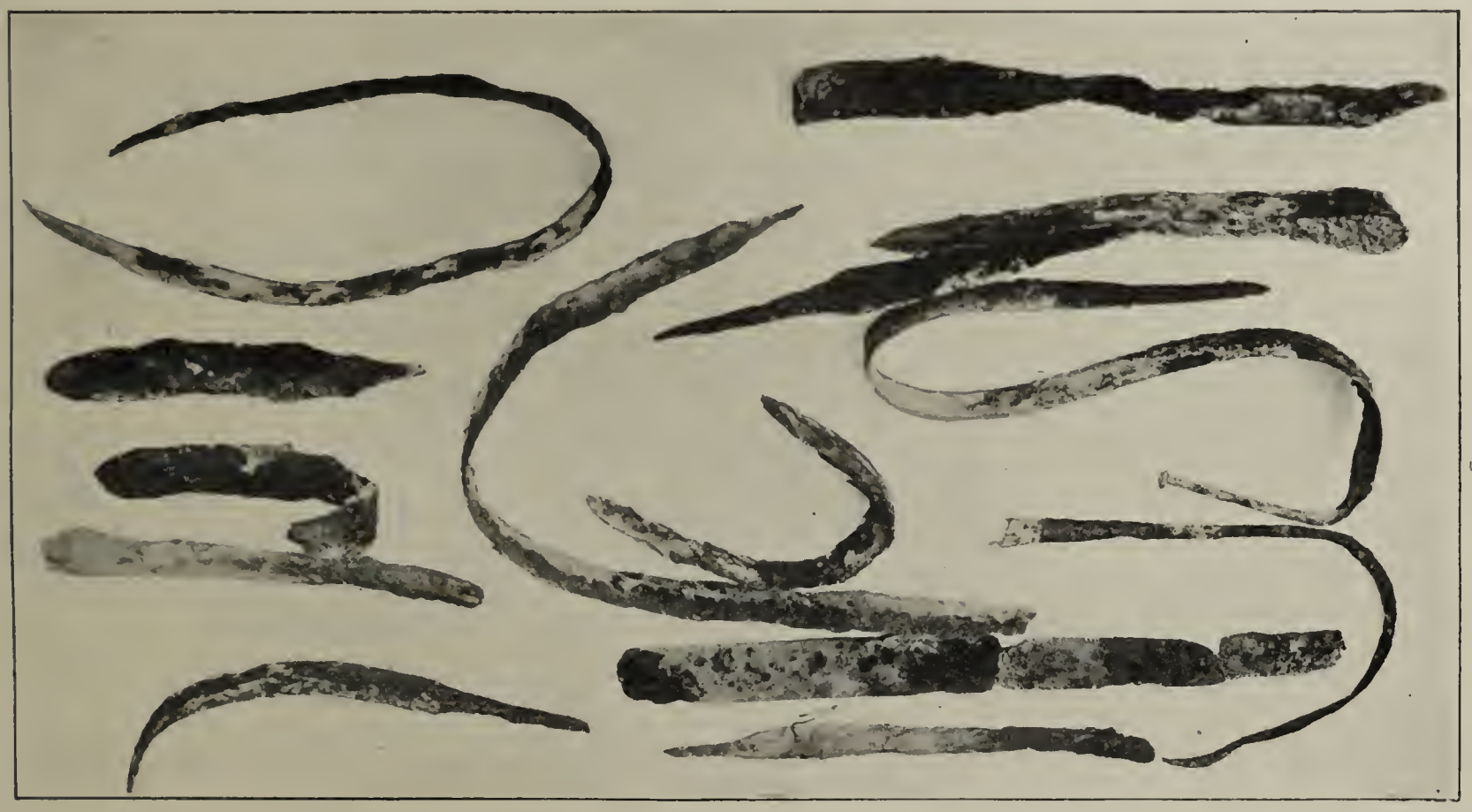
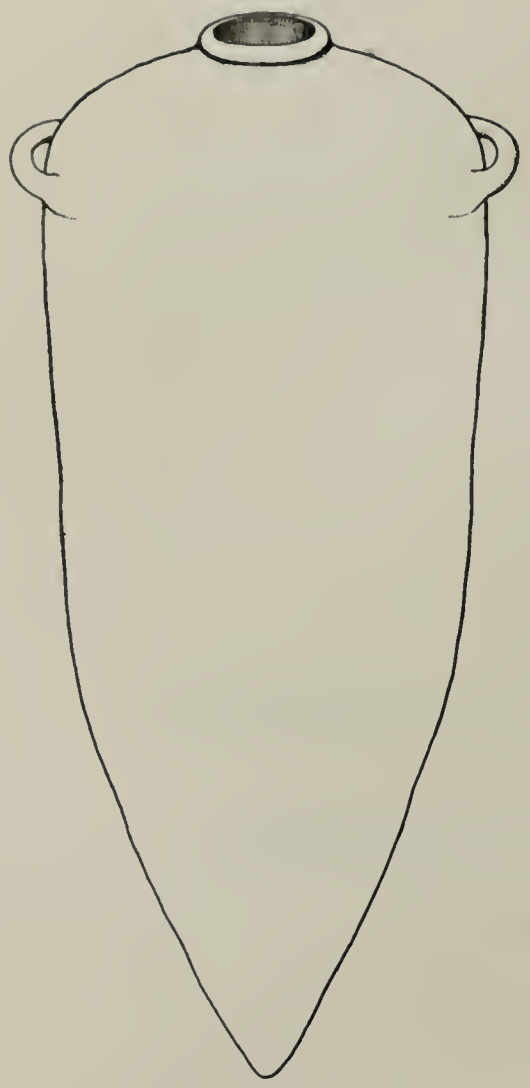


Fig. 33. La Tène swords from necropolis at Arcóbriga.

La Tène swords from Arcóbriga and those from Mátaro, which belong to La Tène II, that I should be inclined to classify the former in that division, or rather to a transition form which lies between the true La Tène I sword, which was short and pointed, and the truer historical La Tène II sword, which gradually lost its point and could only be used for cutting. A transition can be clearly followed in the numerous swords found in the Gallic cemetery of Münsingen in Switzerland (41).

But whether the Arcóbriga swords are transitional or not, they afford, in combination with the fibulae found with them, a valuable indication of the date of that cemetery which can, I think, be safely attributed to the fourth, with a continuation into the third, century B.C. A few isolated specimens of this type



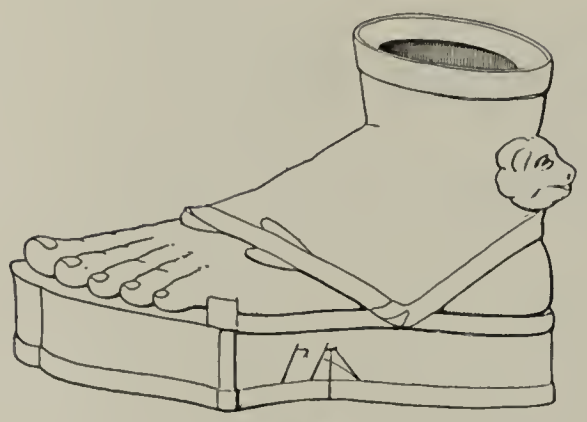
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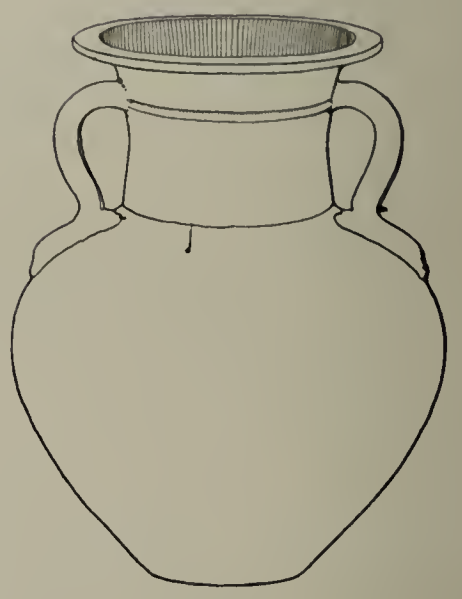
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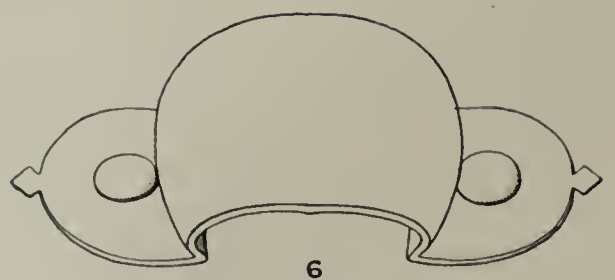
3



4



5



6

Fig. 34. Grave furniture from necropolis at Cabrera de Mátaro.

of sword have been reported from south-eastern Spain. One, at least, was found at Fuente Tojar not far from Almedinilla, while Sñr. Maraver mentions a straight sword (64 cm. (25 in.) long in the blade), probably of La Tène type, which he found at Almedinilla.

But the largest number of La Tène weapons hitherto found together in Spain came from the necropolis at Cabrera de Mátaro, where all the swords discovered, with the exception to which I have already referred (p. 256), belong to that type. The type is not only defined by the form and the length of the swords themselves, which varies from 63 cm. to 80 cm. (25 in. to 32 in.) in the blade, but by the fact that most of them were found still enclosed in their iron scabbards,



Fig. 35. Pottery from necropolis at Cabrera de Mátaro.

the back and front plates of which were held together, not by a light framing, as was the case with the scabbards of the antennae swords and of the *espadas falcatas*, but by the edges being folded the one over the other, a method of making the joint typical of the scabbards of La Tène II. The form of the chape (fig. 34, no. 2), moreover, is also associated with this type of sword.

The objects composing the grave furniture with which the La Tène swords were found in the Cabrera cemetery are interesting. The furniture from one of the graves is illustrated in fig. 34. It consisted of a La Tène II sword, a *soliferreum* (not illustrated), a shield-umbo of La Tène II type, a rhyton in the form of a human foot with an inscription in Iberian characters, a cantharus, Greek in form and of lustred ware, bearing a Punic inscription, and of a dish, also of lustred ware, stamped twice crosswise with the word NIKA, which is

figured in Sñr. Rubio de la Serna's account of the excavations (40). These form together the most important group of objects met with in the cemetery.

In another instance 'five large conical urns' (fig. 34, 1) were found placed in a circle, with iron (La Tène) swords, *soliferrea*, knives, javelin-heads, umbos and shield-rims, hen's eggs, and the black lustred ware generally known as 'Campanian'. The date of the pottery is in this instance, as in that of Villaricos, of importance as indicating the period of the burials, and consequently of the use in Iberia of the La Tène II type of sword. I do not suppose that any doubt will be raised as to the propriety of attributing this pottery, of which further examples are illustrated in fig. 35, to the first half of the third century B.C. From this we can deduce the date of the swords and place it at about the middle of the third century before our era.

In this instance, however, the manner in which the La Tène sword reached the Iberians is clearly indicated by historical records, which tell us that when the Belgae pressed in upon the Gauls in the north-eastern part of France towards the year 300 B.C., the latter in their turn pressed in on the Ligurians in the south-west of that country, and, passing the Pyrenees, occupied in the third century the north-eastern portion of Iberia (45). That the grave furniture at Cabrera was Gallic in character is also shown by the presence of iron shears, and of a bronze strigil which had evidently been imported from Italy, and bore a marked similarity to those found with Gaulish interments at Montefortino.

But may it not be that these Gauls, who are furthermore mentioned in history as having first given trouble to the Carthaginians, and then to have supplied the contingent which accompanied Hannibal into Italy (5), were influenced, like their forefathers in the fifth century, by the culture that surrounded them and became absorbed by the hardy Iberians among whom they had forced their way?

I have already alluded to the statement, so frequently quoted, that the Romans adopted the Iberian sword subsequently to the second Punic war. This statement is mythical and in no respect based upon fact. It is just one of those mythical statements, however, which appeal to the imagination in cases where the conquerors had been forced to respect the valour, the fighting qualities, and the excellence of the weapons of their opponents, as must have occurred to the Romans over and over again during their struggles with the Iberians. M. Salomon Reinach, an Honorary Fellow of our Society, recently exposed the fallacy of the statement (42), and I am indebted to him for further and valuable elucidation of the point. Briefly stated, the case is as follows:

There is but one author known to us who has distinctly stated that the Romans adopted the pointed sword of the Celtiberians, the so-called 'Hispanic sword', the *gladius hispanicus*. That author is Suidas. Now Suidas, the lexico-

grapher, composed the work, from which the now controverted statement has been quoted, in the tenth century A.D., that is to say, more than one thousand years after the alleged adoption of a new weapon by the Roman army. He makes no mention of the source from which he derived his statement, nor is any source known to us from which he could have done so. But modern editors have supplied the want by reading Suidas's tenth-century statement into their editions of Polybius (Book XIX), who wrote his *Bellum Celtibericum* a thousand years before Suidas lived. The *Bellum Celtibericum* has not come down to us, although fragments of it are known from Byzantine compilations and from Plutarch. Suidas's statement with reference to the machaira is as follows: 'The Celtiberians by far surpass other people in the fashion of their machairas. The point is effective, and has a powerful down-stroke on either hand. For this reason the Romans discarded their native sword (machaira) after the wars with Hannibal (ἐκ τῶν κατ' Ἀννίβαν) and adopted the Iberian weapon. (M. Reinach renders the phrase τὰς πατρίους ἀποθέμενοι μαχαίρας, "à la place d'une arme camarde de vieux modèle," *op. cit.*, 42.) They adopted the form, but the fine quality of the iron and the process of manufacture they were quite unable to imitate'[1] (43). But the text itself indicates confusion of ideas or misinterpretation of the authors consulted on the several points touched upon ('Suidas read a lot of authors who have not come down to us'[2]).

I have endeavoured to show that the predominant type of Iberian sword at the time of the second Punic war in the latter part of the third century B.C. was the *espada falcata*. It certainly could not have been the 'antennae' type which was so much in evidence during the period of the Aguilar de Anguita necropolis. This had a point, it is true, but could a 'powerful down-stroke' be delivered with it? Nor should it be supposed that the Iberians, during the second Punic war, were generally armed with the Gaulish La Tène I or La Tène II swords of the type which has come to light at Arcóbriga and at Cabrera de Mátaro. There is no evidence whatever, either material or historical, which can be pointed to as bearing out any such contention. Indeed, the only good historical evidence available in regard to the swords used by the Iberians and the Gauls at the period points to a different conclusion. We are told for instance by Polybius, an historian of repute and a careful narrator, whose account of Hannibal's campaigns in Italy is accepted as being the most reliable of all those which have come down to us, that at the battle of Cannae (III, cxiv), 216 B.C., the shields of the Iberians and of the Gauls (who were both serving in Hannibal's army) were of the same form but that their swords were different, that of the Spaniards being suitable for thrusting or cutting, whereas that of the Gauls could only be

[1] I am indebted to Mr. E. J. Forsdyke, of the British Museum, for the rendering of this passage.
[2] Quotation from a letter from M. Salomon Reinach to H. Sandars, of Sept. 9, 1908.

used for 'slashing and at a distance'. Is it to be supposed that if the sword of the Iberians at that time were of the type of La Tène which had been brought to them by the Gauls when they invaded their country less than a century before, those Gauls, or their countrymen, who took part in the same campaigns would have employed a sword inferior in efficiency to their own type of sword in the hands of the Iberians? It is obvious, I think, that the types must have been distinct.

But if the sword of the Iberians at the time of the second Punic war was the *falcata*, as I contend, the Romans certainly did not adopt that type of weapon. They were acquainted with it before that war broke out. This can be proved by their coins. The As (fig. 36) and the Quadrans struck in Italy in about 220 B.C. bear on the reverse, in the field above the prow of the ship, a full representation of the machaira, a representation so close to reality that recent investigations in Italy have enabled me to trace it to its source. It is not Iberian but Italian; it had no point, and so could not be used for thrusting.



Fig. 36. As, showing machaira above prow.

The myth of the adoption of the Iberian weapon by the Romans is based upon the assumption that at the time of the second Punic war they were using a sword which was useless for thrusting ('*une arme camarde de vieux modèle*'); and that, having learned from the Iberians how effective a pointed weapon could be, they threw their old implement away and adopted that of their enemy. This is pure fallacy. Their own sword was pointed, and they knew how to use the point before the second Punic war broke out. Polybius (II, xxxiii) clearly points this out in his graphic description of the battle between the Romans under Fabius Furius and C. Flaminius and the Insubrian Gauls in 223 B.C., when the tactics of the consuls, which proved eminently successful, were founded upon the difference in the types of sword of the two armies. The Gauls had a long sword which could only be used as a cutting weapon, whereas the Romans carried a short sword with a point. The Roman soldiers were especially trained to employ their swords in a particular manner in this battle, and they did so. They dashed forward, got under the guard of their opponents, and then used the point to such effect on the unprotected bodies of the enemy that the Gaulish force was in the end annihilated.

Having dealt with the sword, and shown, I venture to believe, that there was no adoption by the Romans of any Iberian type of the weapon, there alone

remains to be dealt with Suidas's assertion that the Romans followed the Iberian method of making their swords. It is extremely probable that they did so. They had had numberless opportunities, during the years between the outbreak of the second Punic war in 218 and the fall of the 'heroic Numantia' in 132 B.C., of appreciating the excellence of the quality of the weapons of the Iberians, and as they were a receptive people it would only be logical and natural that they should adopt the new method of manufacture, the method of the Iberians, without however being able to 'imitate the excellence of the iron or the process generally'.

There is nevertheless a passage in Polybius where he mentions the *gladius hispanicus*, to which I must refer before passing on to another subject. He tells us (VI, xxiii), when describing the equipment of the Roman army, that the Hastati also had a sword which they carried on the *right side* (the Iberians wore theirs on the left), a two-edged sword with a strong and solid blade, excellent for thrusting, which they call 'Iberian'. But is it not possible, and indeed probable—and in this I am following M. Reinach's lead in his erudite dissertation on the subject—that the expression *gladius hispanicus*, just like that of a 'Toledo blade' in recent times, bore reference not to the type, which the Romans did not adopt, if my contention is correct, but to the quality of the weapon, due to the processes of manufacture they had acquired from the Iberians? But although I have shown, I hope, that the Romans did not adopt the 'Hispanic sword', it is nevertheless probable that they did adopt the dagger and imitated the Iberian method of using it.

Daggers.

The dagger formed an important part of the accoutrement of the Iberian warrior. The weapon varied in form and in size from a type which might not improperly be called a short sword, to a short triangular blade, about twice as long as it was broad. I have illustrated in fig. 37 examples of Iberian daggers from different sources. Their classification, from the chronological point of view, is not an easy matter, as the main characteristics continue, in some instances, through the greater portion of the period under review; but their classification into types is, fortunately, a much easier matter. There appear to have been three distinct types, viz. an 'antennae', a 'short sword' type, and a type compact in form with a short, strong blade.

The 'antennae' type has been found at Aguilar de Anguita (no. 5) and at Almedinilla (nos. 9 and 10), as well as at Hijes in Guadalajara, where it was probably contemporaneous with the Aguilar de Anguita specimen. At Aguilar it was a well-proportioned weapon, about 21 cm. (8 in.) long in the blade: the length of the grip where the hand was placed was practically the same in the

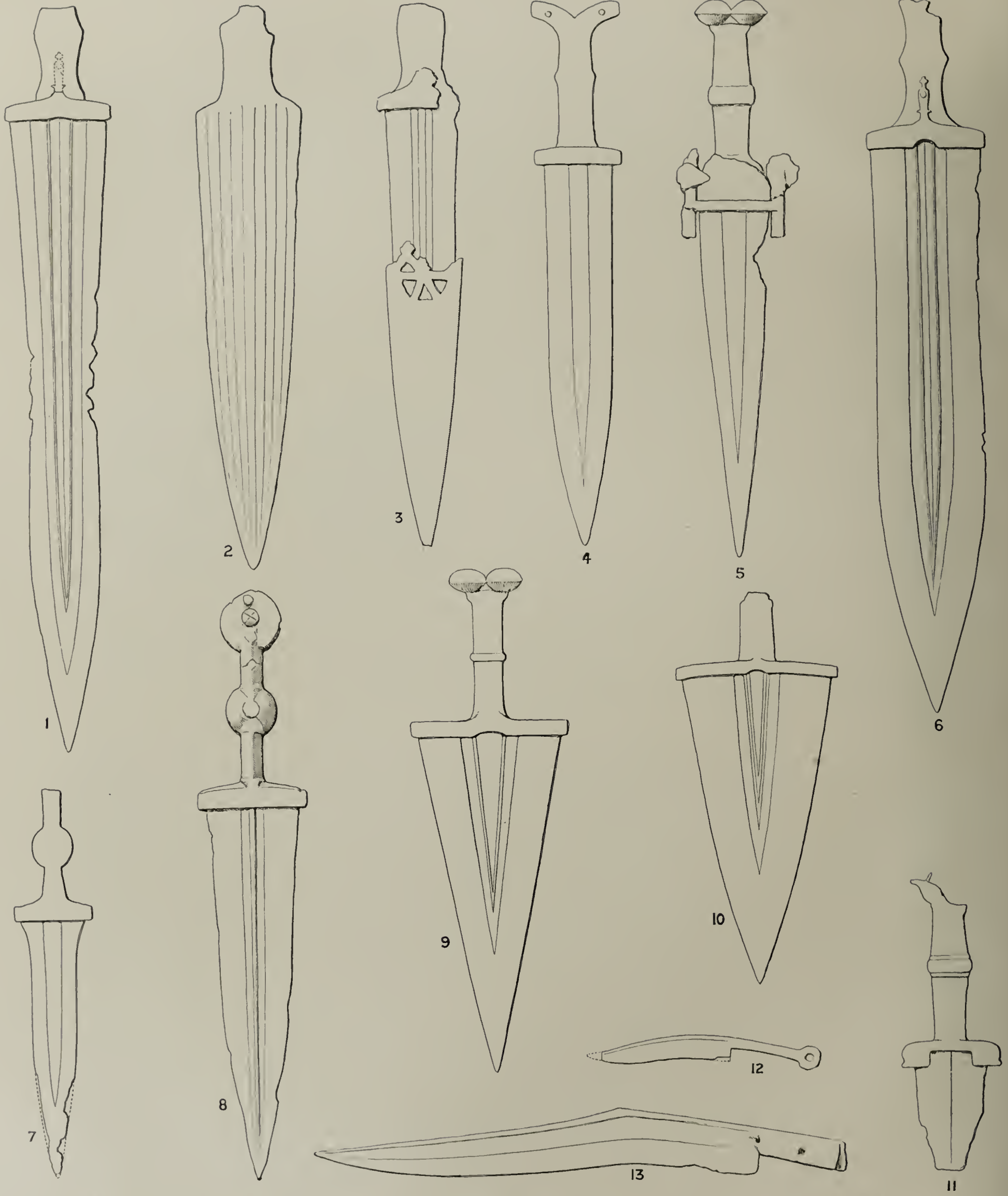


Fig. 37. 1–11, Iberian daggers from various sources; 12–13, Iberian knives from the necropolis at Aguilar de Anguita.

daggers as in the swords of the period, viz. about 7 cm. to 8 cm. ($2\frac{3}{4}$ in. to 3 in.); but at Almedinilla it is found with a wider base and a shorter blade, and appears to have assumed the marked triangular form to which I have already alluded. In both the specimens illustrated the blade is about 8 cm. (3 in.) broad at the base and 18 cm. to 19 cm. (7 in. to $7\frac{1}{2}$ in.) long. Fig. 38, a statuette in bronze from Despeñaperros, represents a warrior armed with the triangular dagger.



Fig. 38. Statuette showing dagger with triangular blade.



Fig. 39. Iberian dagger from Almedinilla.

No. 2 in fig. 37 is also from Aguilar de Anguita. It appears to be of an older type than any of the others and I do not know of any other like it, although it bears some analogy to a sword from the same cemetery (pl. XI, fig. 2, *e*).

Another type (fig. 37, nos. 1 and 6) again comes from Almedinilla. It is the most efficient weapon of all. Indeed, it illustrates one of those cases where a long dagger might be classified as a short sword, or a short sword as a long dagger. No. 1 is 36 cm. (14 in.) long in the blade, while in no. 6, which is in my possession, the blade is somewhat shorter. There can, however, be no doubt that it was used as a dagger, since it was found at Almedinilla (fig. 39) in association with a sword—the *espada falcata* of the Iberians. It certainly could not be used for delivering a powerful cutting blow, which was one of the characteristics of the *falcata*.

The third type, which became the typical Iberian dagger, is illustrated in fig. 37 (nos. 7 and 8). The blade is about 20 cm. (8 in.) long and $3\frac{1}{2}$ cm. ($1\frac{1}{2}$ in.) broad at the base. It is quite possible that it grew out of the 'antennae' form, as a specimen was found at Aguilar de Anguita. It is this type of dagger that has been discovered in the ruins and amongst the ashes of the Iberian town of Numantia (fig. 40), and several examples have been found in other parts of Spain. The sheath probably terminated in a globular chape. It is a true dagger in form, and it may well be the weapon to which Diodorus Siculus refers when he mentions (45) that they (the Celtiberians) 'carry two-edged swords exactly tempered with steel, and have daggers besides, of a span long, which they make use of in close fights'.



Fig. 40. Iberian dagger from Numantia.

I have already mentioned (p. 265) that although it be a myth that the Romans adopted the *gladius hispanicus* after their wars with Hannibal, it is possible, and indeed probable, that they did adopt an Iberian weapon, viz. the dagger of the type which I have just described. The adoption of this dagger may have led to the *parazonium* and its recognition as a typical Roman weapon. The hilts of the two weapons were identical, but the form of the blade varied. In the Roman type it narrowed from the shoulder, broadened in the middle of the blade, and then tapered to a point, thus following the general outline of their sword (the *gladius*); whereas the Iberian weapon tapered gradually from shoulder to point. An example of the Roman type of this dagger has been found at Numantia, but outside the walls of the town and in association with objects which point to connection with the Roman besiegers and not with the besieged.[1]

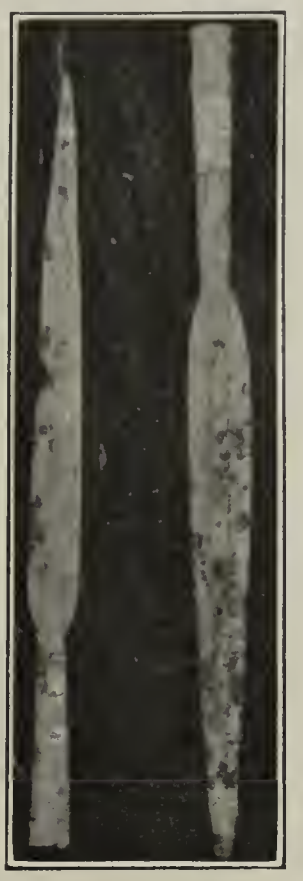
The Iberian dagger is also figured on some of the autonomous coins on pl. X, nos. 9 and 19.

Spear, Javelin, and Soliferreum.

I will now turn from the cutting and thrusting to the missile weapons of the Iberians, for which they were almost as celebrated as they were for their swords.

[1] I am indebted to our Honorary Fellow, Don José Ramon Mélida, for information bearing upon the matter and for the photograph from which fig. 40 has been taken.

Among these weapons the spear took the foremost place. In the hands of the Iberians it reached a state of perfection in regard to workmanship and elegance of form and efficiency as a weapon of attack which, although it may possibly have been equalled, was certainly never surpassed by any other nation. The nearest approach to it is to be found in the spears of the Greeks, of which many specimens have been discovered at Dodona in Epirus (44). There is also similarity in form between some of the finer of the Hallstatt spears and those from Iberia, while the type is again represented among the weapons found in the tumuli at Avezac-Prat. It is by no means beyond the bounds of possibility that the type may have come to the Iberians from other countries as the *espada falcata* did, and that, having learned by experience the good use to which it could be put, they adopted, improved, and developed it. Fig. 41 represents two examples from the Iberian necropolis at Almedinilla.[1] They are of an elegant elongated form, with a long socket prolonged as a strong midrib; while the blade, like the leaf of the willow, swells slightly after leaving the haft and then gradually tapers off to a point. It must have been a weapon of much strength and great penetrating power. It was the longest of all the Iberian types, and measured, in some instances, 55 cm. (22 in.) in length, of which 45 cm. (18 in.) went to the blade and 10 cm. (4 in.) to the socket. The type was common to all the phases of the period with which I deal. It appears to have attained its highest degree of excellence in the third and second centuries B.C., as the specimens from Almedinilla show greater elegance in form and design, and even better workmanship, than those from the Aguilar de Anguita necropolis. Some examples indeed are very artistically decorated with inlay of silver and bronze (figs. 21, 22).



1 2

Fig. 41. Spear-heads from Almedinilla.

The shape of the spear-head naturally varied considerably. I have illustrated in fig. 42 as many of the different types and their variations as I have been able to gather together. Some may be rather of the nature of javelin than spear-heads, but it is often difficult to distinguish between the two weapons. They do not call for any further special remark except no. 22, which more closely resembles a pike than a spear-head, as it has a broad, flat blade with a cross-bar at the base. It is 56 cm. (22 in.) long, of which the blade occupies 40 cm. (16 in.). It is to be found in the Museum at Córdoba, where it is described

[1] From the collection of the Real Academia de la Historia in Madrid.



Fig. 42. Typical Iberian spear-heads and butts from various sources.

as having come from Almedinilla. I hesitated for some time before accepting the provenance as correct, but that it was really an Iberian weapon is proved by a coin of Carisius (fig. 43), where it is clearly represented in conjunction with the Iberian round shield and the *falcata*.

The Iberians, like the Greeks and Romans (Polybius, VI, xxv), fixed iron butts or spikes at the bottom of the shaft of their spears which served to fix them in the ground or to allow of their serving, in case of need, as a second weapon of offence. Many examples have been found in Spain and several are illustrated in fig. 42, *e.g.* 15 and 20. Some were solid and provided with a tang, as in no. 12, which the Marques de Cerralbo found in the cemetery at Aguilar de Anguita, while others were provided with a socket into which the shaft was fitted. They sometimes exceeded the spear-head itself in length (no. 15).[1] They were often quadrangular in section and terminated in a sharp point like the head of a modern lance, so that it is sometimes difficult to distinguish between the butt and the head of the spear. The Iberian soldier, both on horse and on foot, was armed with two spears, one of which he probably threw at his enemy and then closed in on him with the other.



Fig. 43. Spear-head and *falcata* on coin of Carisius.

Javelin. Of the javelin or *gaesum* many examples have come to light. The Marques de Cerralbo found a considerable number in the Arcóbriga necropolis (fig. 44), where the La Tène type of sword predominated, while others have been discovered at Almedinilla. I am not aware that any have been found with the 'antennae' swords at Aguilar de Anguita, and consequently they do not appear to have been in use in Iberia before the fourth century B.C. Their presence at Almedinilla carries them into the second century. The weapon was composed of a socket, a tapering shaft, and an elongated head or point. The length over all varied from 35 cm. (14 in.) (of which 16 cm. ($6\frac{1}{2}$ in.) went to the socket and 7 cm. ($2\frac{3}{4}$ in.) to the head) to about 20 cm. (8 in.). It must have been a light and handy weapon and well suited to the tactics of the brave and agile Iberians. It is quite possible that this weapon too may have come to them from outside their country, perhaps from Celtic sources. May it not be the *gaesum* which Athenaeus (VI, 273, F) attributes to the Iberians? Livy (Book XXI, 8; XXXIV, 14) mentions, and he is the only ancient author to do so, an Iberian missile weapon which he calls the *falarica*. He describes how it was used with much effect by the Saguntines when they were besieged by

[1] From the collection of the Real Academia de la Historia in Madrid.

Hannibal in 219 B.C., and states that the shaft, which was made of fir, was cylindrical with the exception of the part where it joined the iron head, which 'was square like the Roman *pilum*' and about 3 ft. long, so that it might pierce through both armour and body. I do not know of any Iberian weapon directly corresponding to this description, but Livy wrote his history about two hundred

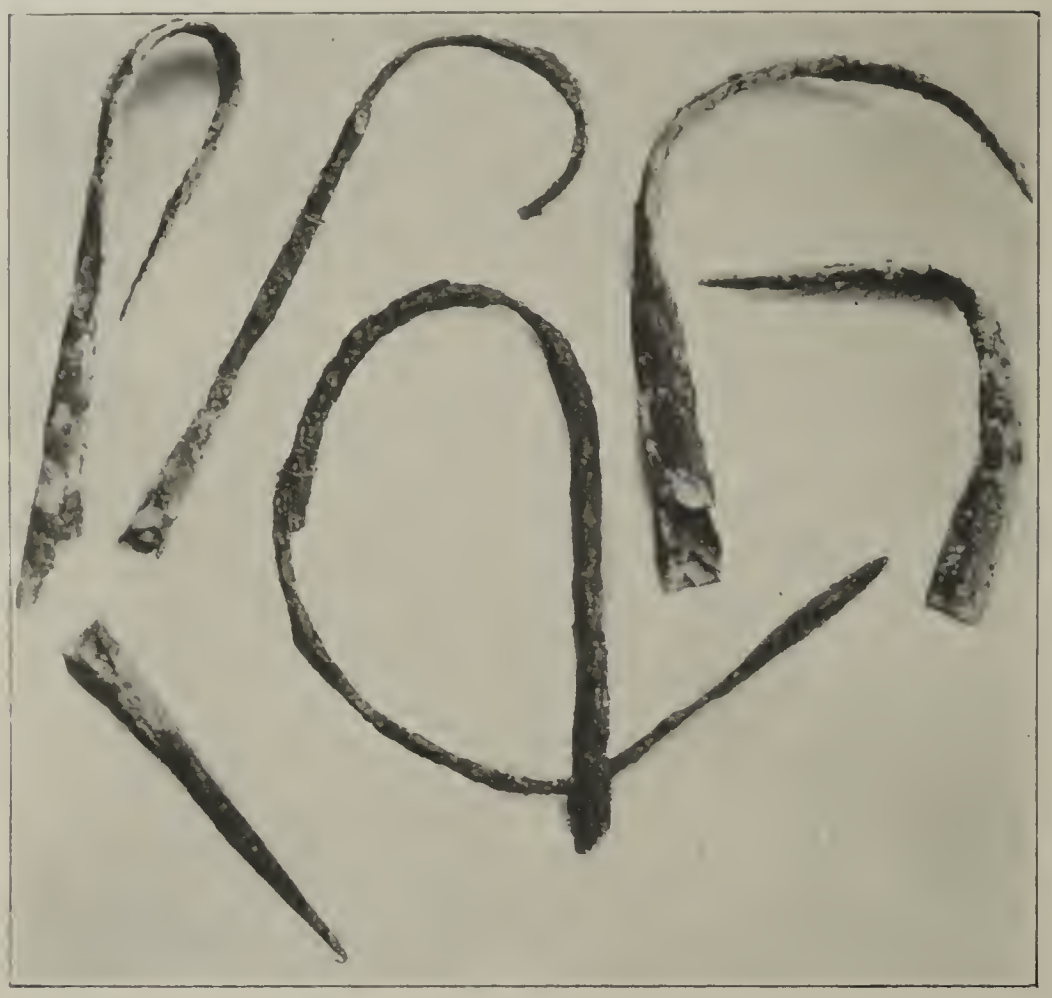


Fig. 44. Javelins (*falaricae?*) from Arcóbriga.

years after the event to which he referred took place, and the form of the *pilum* may have been modified in the interval.

Soliferreum or Saunion. In this case, however, there cannot, fortunately, be any doubt as to the weapon the historians refer to. Diodorus Siculus (45) tells us that 'those they call Lusitanians are the most valiant of all the Iberians. . . . They use hooked saunions made all of iron, and wear swords and helmets like those of the Celtiberians.' There has been much dispute as to what this passage could mean, and as to what weapon was meant by the 'hooked saunion all made of iron'. Archaeological researches in Spain have solved the question for ever. The first record we have of the discovery of the saunion or *soliferreum* dates from 1867, when Sñr. Maraver carried out his researches at Almedinilla, where he found eighteen of this type of efficient missile weapon. The Marques de

Cerralbo, again, has found the *soliferreum* in the Aguilar de Anguita necropolis associated with the 'antennae' sword, bronze ornaments, and the other typical grave furniture of that period. It has also come to light at Villaricos, at Cabrera de Mátaro, and at other places in the Peninsula; and I have no doubt that it had been found long before the date given, without being recognized. It is sometimes discovered in a broken condition, and, when the head becomes separated from the shaft, it may readily be mistaken for part of a dart or javelin. It is indeed the most persistent in type and the most common of all the weapons of the Iberians. Like the 'antennae' sword, it came in all probability from the north of the Pyrences, as it has also been found at Avezac-Prat (24), and on the Plateau de Gers in the Garonne district (46). It never varied in form, and it has been found in Iberia in association with the three types of sword which I have described, viz. the antennae, the *falcata*, and the La Tène. It consisted of a long shaft of wrought iron, thickened in the middle and gradually tapering towards both ends. One extremity (pl. XIX, *b*) ended in a point, while the other, the piercing end, terminated in an elongated lance-head, the lower end of which was sometimes merged in the shaft (fig. 45, *a*), while in others, and this was the general rule, it spread to form the barbs (fig. 45, *b*, *c*, *d*, *e*) which gave rise to the name of the implement, viz. the 'hooked saunion' (*χρῶνται δὲ καὶ σαυνίοις ὁλοσιδήροις ἀγκιστρώδεσι*). The shaft itself was sometimes barbed below the head (fig. 45, *b*).



a *b* *c* *d* *e*

Fig. 45. Saunia-heads showing barbs.

The *soliferreum* varied in length from about 1·60 metres (5·3 ft.) to 2 metres (6 ft. 6 in.), the length of the head from 5 cm. to 9 cm. (2 in. to $3\frac{1}{2}$ in.). The thickened portion in the middle was generally hexagonal or quadrangular, the angles being notched with a file so as to offer a firm grip for the hand. In one case, an example of better workmanship (pl. XIX, *b*), a well-defined grip had been formed by rings or scrolls, the space left for the hand being of the same dimension as that on the hilt of a sword. It was a well-balanced weapon of great penetrating power, which could be thrown to a considerable distance. Such a weapon could not be used by troops manœuvring or fighting in close formation. Diodorus Siculus tells us (V, xxxiv) that the Lusitanians and the Celtiberians 'threw their darts (*soliferrea*) at a

great distance and yet were sure to hit their mark and wound deeply; being of active and nimble bodies, they can fly from or pursue their enemy as there is occasion'.

The equipment of a light-armed Iberian foot-soldier consisted of a *soliferreum* (perhaps of two), of a sword, a dagger, and a small shield. It is probable that he used the *soliferreum* in the same manner that the Roman used the *pilum* and the Franks the *angon*, and that with it he endeavoured to pierce his enemy's



Fig. 46. Coin of Galba ('Hispania') showing spears provided with *armentum*.

shield, which would be thus dragged down by its weight and leave the way open for an attack with the sword.

The *soliferrea*, illustrated on pl. XIX, *b*, have without doubt been straightened since they were brought from Almedinilla to the Museum in Córdoba where they now are, as they were always folded when buried with an interment (pl. XIX, *a* and *c*). This was not done to conform with ritual practices, but solely with a view to convenience and economizing space in the grave.

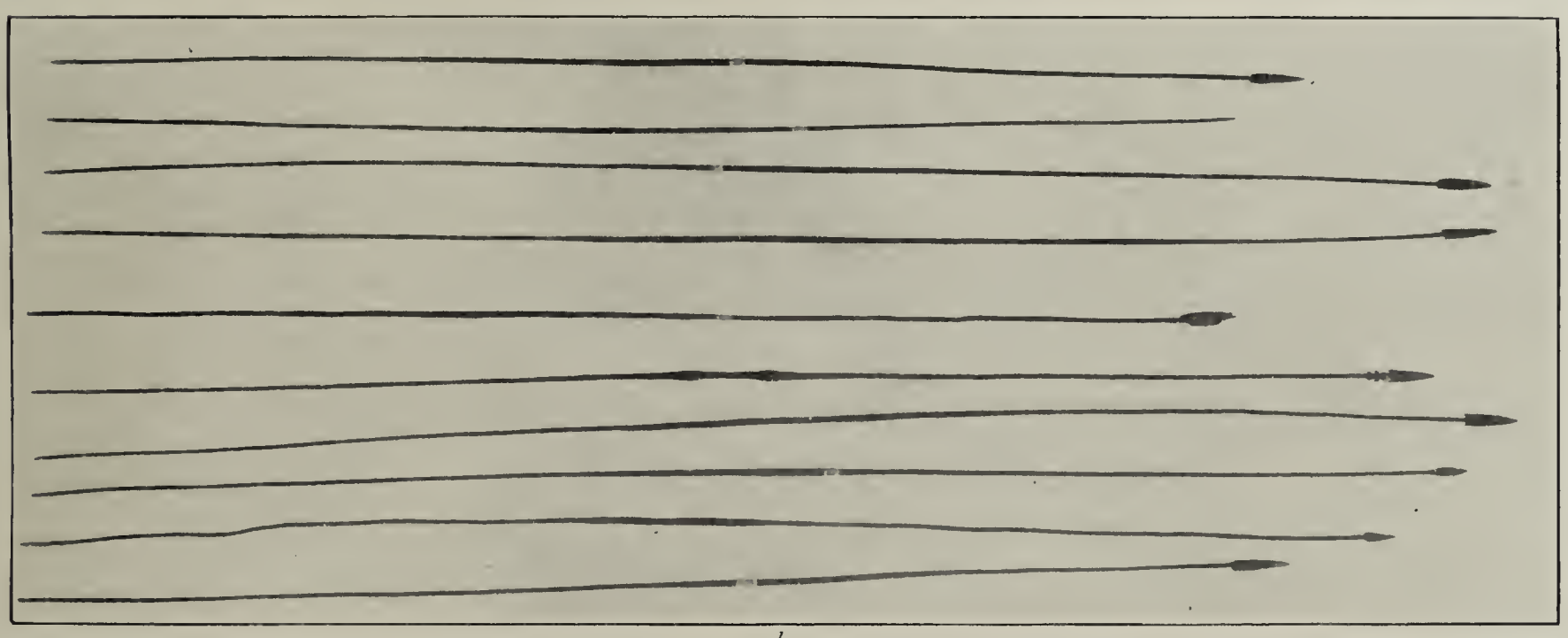
The question as to whether the *soliferreum* was used with an *armentum* or not will probably long remain unanswered. The grip in the middle of the weapon would point to its being manipulated with the hand only, but it would not preclude the use of the *armentum* as well.

I do not know of any definite representation of the *soliferreum* on monuments or coins, unless it be the weapon which is shown on the reverse of a coin of Galba, inscribed HISPANIA, representing on the obverse a female head, two ears of corn, the typical round Iberian shield, and two long, thin lances, apparently in one piece, and each provided with an *armentum* (fig. 46[1]); and on the

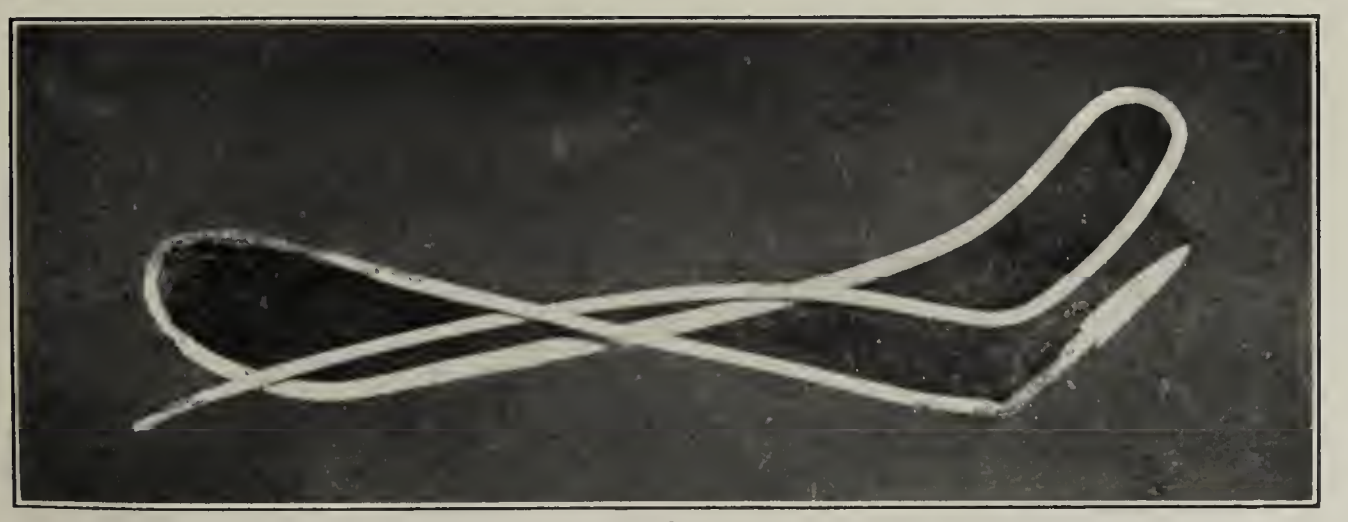
[1] From a cast of the coin in the British Museum.



a



b



c

IBERIAN SAUNIA

a. Interment in Aguilar de Anguita necropolis.
b. Saunia from Almedinilla.
c. Saunion from Almedinilla, as found.

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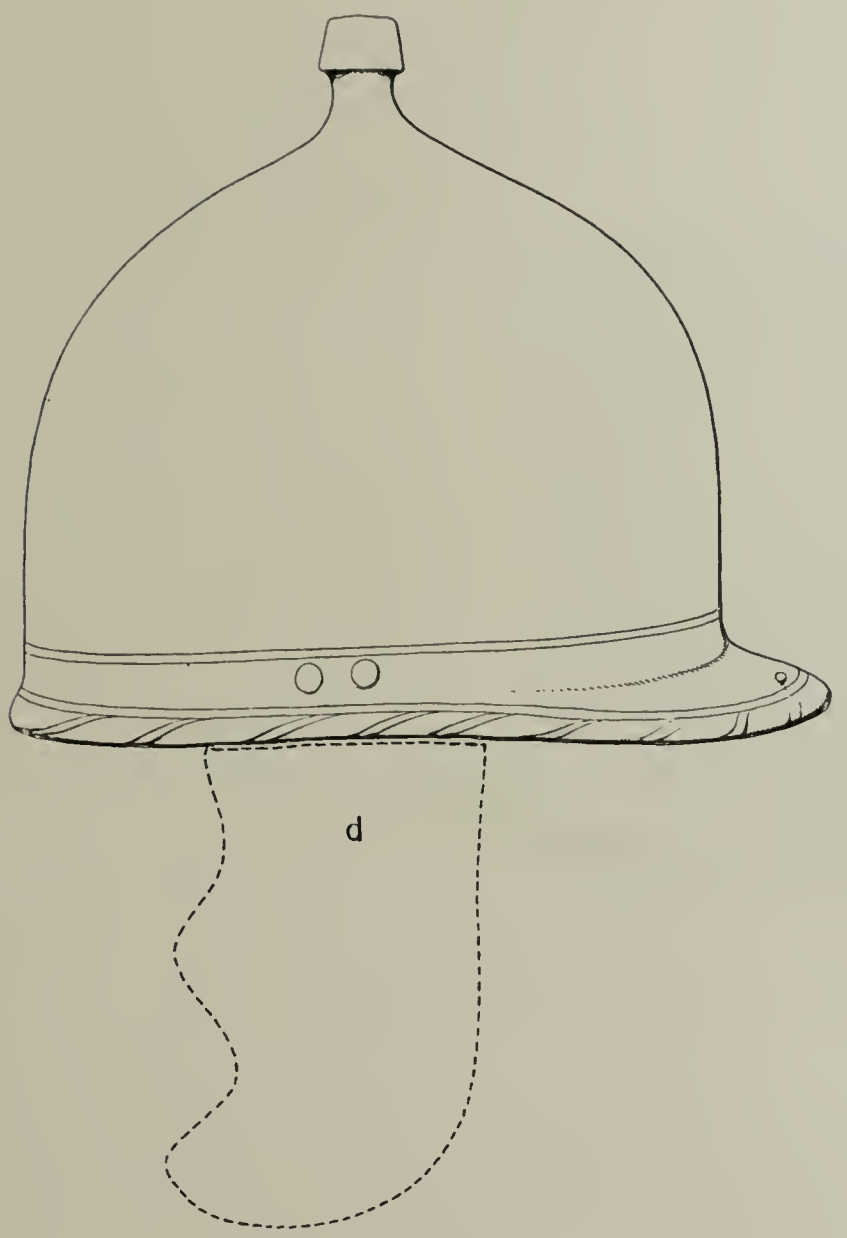
a



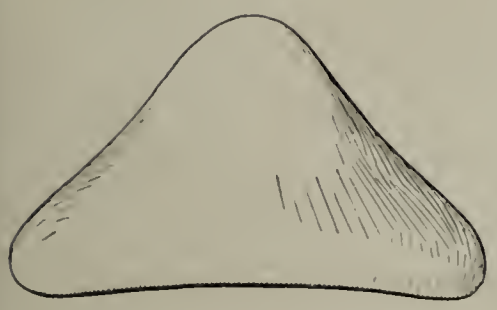
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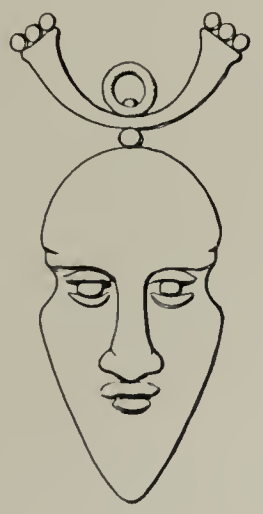
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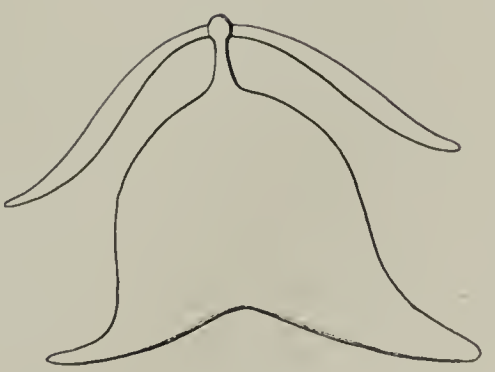
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e



f



g

Fig. 47. Iberian helmets and head-coverings.

reverse of a gold coin, of the same emperor, which was also struck in Spain, bearing on the reverse a female figure (HISPANIA) holding in the right hand ears of corn and in the left an Iberian round shield and two long, thin lances.

HELMET, SHIELD, AND GREAVE.

The Iberians protected their heads from blows or injury in war in various ways. They wore helmets of bronze (perhaps of iron), caps of leather and *gorras* made of sinew; while they dressed their long and flowing hair so that it resembled a Greek helmet in outline and form and afforded a very efficient protection for head and neck (fig. 47, *a*, *c*). There are but few references to the head-gear of the Iberian warrior among classical authors, nor do those references throw much light on its form or on the material from which it was constructed. Strabo (48) tells us that a few of the Lusitanians wore helmets with a triple crest (plumes), but that they were generally 'made of sinew'.[1] Diodorus (49) speaks of the helmets of the Celtiberians as being of brass (though it was probably bronze) and adorned with red plumes. But if the classical references are scarce there is, fortunately, a considerable amount of direct evidence in the form of statues, statuettes, and other representations of Iberian warriors in stone and bronze to which to turn in order to obtain a correct conception of the head-gear they used and as to how it was fashioned and worn. But few actual examples have been found, however, as all traces of such perishable material as leather or sinew have long since disappeared.



Fig. 48. Bronze helmet found near Alcaracejos (Córdoba).

Such helmets as have so far come to light in Spain are of bronze and they are all identical in form with one exception, a helmet discovered by the Marques de Cerralbo in the Aguilar de Anguita necropolis, which is in too fragmentary a state to allow of its true form being determined, and is still awaiting restoration. A well-preserved example (fig. 48[2]) was discovered at the bottom of the shaft of an abandoned mine in the south of Spain, near

[1] The Greek word *neurinos* employed by Strabo is usually rendered in translations by 'leather', whereas it in reality signifies 'made of sinew'. I am indebted to Mr. Forsdyke of the British Museum for the correct rendering of the word.

[2] By the permission of the owner, Mr. Arthur Taylor.

Alcaracejos in the province of Córdoba. It probably fell from the head of a soldier who went to draw water from the shaft when it served as a well, and was never recovered. M. Siret has found several helmets of similar form at Villaricos, while another[1] was discovered at Quintana Redonda in 1863 covering two silver bowls filled with silver autonomous coins with the legend ⁎ᚴᛖᚴᚴ(Osca). This is a well-known type of helmet, of which examples have been found in France and a very large number in many parts of the north of Italy. Although generally described in museums and in works on archaeology as 'Etruscan', it was an essentially Gaulish type, and it is generally found in Italy in Gaulish cemeteries. The form, in bronze or in iron, continued in use in that country until the first century B.C. It has been found at Giubiasco, Canton Ticino, which had long been under Roman influence; while several examples are known which bear



Fig. 49. Horseman with helmet and shield.



Fig. 50. Horseman with crested helmet.

inscriptions in Latin characters, setting forth the name of the owner or owners, the helmets sometimes passing from one soldier to another. Some of the Italian examples were very artistically decorated, such as those from the Montefortino necropolis; whereas, with the exception of a simple pattern of engraved or dotted *rinceaux* round the border, the Iberian examples are undecorated. But there is one feature common to all the helmets of this type, whether they are found in Iberia, Gaul, Italy, Carniola, or Hungary: they all have a ring fixed by a rivet to the underside of the neck-guard (fig. 47, *d*), which probably served for its suspension when not in use. This peculiarity would point to a common origin and to the long survival of a distinctive feature in a piece of defensive armour, and one can but come to the conclusion that, in this case again, the Iberians learned its use from the Gauls. The helmet was fitted with jugularies or cheek-pieces, but as the hinge-bar was made of iron they usually become detached and so are lost.

The mounted Iberians also used this form of helmet, as can clearly be seen on the coin (attributed to Iliberis) shown in fig. 49, where the jugularies are actually indicated. It is difficult to date this helmet in Spain, but it was probably in use in that country during the last three centuries B.C. In many

[1] Now in the collection of the Real Academia de la Historia in Madrid.

instances the Iberian warriors represented on autonomous coins are wearing a helmet of the form shown in fig. 50, but I do not know that any actual example has been found.

Although Strabo tells us that the helmets of the Lusitanians were generally made from sinews, he makes no mention of their form; and of any such perishable material as sinew no trace could now be found. A form of head-dress was, however, in use among the Iberians which may possibly be the one Strabo refers to, as it must have been made of some stiff material to enable it to keep its shape, which very nearly approached that of a broad tam-o'-shanter. The head of the Lusitanian warrior whose statue is now at Villa Douca de Aguiar in Portugal (47) is covered with it (fig. 47, *e*), and it distinctly appears among the trophies on a coin of Carisius (pl. X, nos. 20, 21), and on another coin struck at Carthago Nova (no. 13).

Another form of head-gear was that of a large-crested helmet (fig. 47, *a*), which appears in several instances on bronze statuettes found in the south of Spain. There are two examples in the Museo Arqueológico in Madrid and in both cases the warrior is armed with the typical Iberian round shield and a short sword.

Strabo mentions (III, iii, 7) that the Lusitanians had long and flowing hair like the women, but that when they went into a battle they tied a band round their foreheads, and there are instances where the Iberians are pictured with their hair plaited and dressed so as to form a crest, while the long tresses which fell on each side of the neck afforded a very efficient protection against a cut from the enemy's sword (fig. 47, *c*; pl. XX, *d*). In some cases the bronze helmets of the Iberians were provided with visors (fig. 47, *f*). Doubt has been thrown upon this statement, but the visor is clearly indicated on the reverse of a coin of Carisius (pl. X, no. 19), struck in Iberia and representing trophies of arms acquired during his campaign against the Cantabrians. Moreover, two bronze statuettes have come to light in the south of Spain in which the face is covered with a visor (although the helmet is not represented); and I have seen in the Etruscan section of the Vatican Museum at Rome a Gaulish helmet, of the type I have described as being also Iberian, still fitted with a visor. The ornament on the apex of this helmet closely corresponds with Strabo's description of the Lusitanian helmet with a triple crest.

There is still another head-piece which is often represented in figures of Iberian warriors. It was in the form of a close-fitting cap with a border running round the sides and back of the head, and it was probably made of leather. Sometimes the cap covered the whole of the head, the border fitting closely round the neck, but it generally took the form of a skull-cap, as shown in fig. 47, *b*, and in fig. 51.



a



b



c



d



e



f



g

SHIELDS AND GREAVES

a, *b*, *c*. Umbo and shield-clips from Aguilar de Anguita. *d*. Bas-relief of Iberian warrior with shield, *falcata*, and head-dress from Osuna. *f*. Bas-relief of warriors with greaves and round shield from Osuna. *e*, *g*. Bronze statuette of Iberian warrior from Despeñaperros.

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It was worn by foot and horse soldiers, and in both cases there was a marked similarity in the method of dressing the hair, which fell in two long tresses or curls from under the cap on each side of the neck until they almost touched the shoulder (fig. 51). This arrangement of the hair was not, in all probability, a question of fashion or a fortuitous case of personal adornment. It formed part of the equipment of the soldier, so to say, and showed a deliberate purpose, viz. that of affording a protection to the jugular vein. We have an instance of two similar tresses forming part of military regulations in our own times, when the Hussar regiments in France were ordered, in imitation of a Hungarian practice, to substitute for the single plait which had been introduced into the French Army by an ordinance of April 25, 1767, two tresses, falling one on each side of the face; their object being to parry a cut at the neck which would have especially endangered the carotid artery, as well as to protect the cheeks.[1]



Fig. 51. Iberian horseman.

Greaves also formed part of the defensive armour of the Iberians—so we are told by Strabo (III, iii, 6), who says that they were worn by the foot-soldier. They were probably made of iron, or of rough hair or felt. A bas-relief which MM. Engel and Paris found at Osuna (pl. XX, *f*) clearly shows the lower part of the legs of a soldier protected by greaves. Unfortunately the composition is not complete, and it is consequently not possible to say with certainty to which nation the soldier with the greaves belonged. The 'Iberian origin of the sculptures, however, cannot be doubtful' (37).

The Shield constituted the principal defensive weapon of the Iberians. It is frequently referred to by historians, and appears to have been either oblong in form and of sufficient length to cover about two-thirds of the body of the wearer, or small and circular. Both Polybius (III, cxiv) and Diodorus Siculus (V, xxxiii) refer to it; the former stating that Hannibal's Gaulish and Iberian auxiliaries both had shields of the same form, 'although their swords were different,' while the latter mentions that 'some of the Celtiberians were armed with the Gaulish light shields, others with bucklers as big as shields'. The central figure in pl. XX, which represents a bas-relief found by MM. Engel and Paris at Osuna, clearly shows the oblong Gaulish shield which is being carried by an Iberian warrior (? Lusitanian), who has a *falcata* in the left hand

[1] I am much indebted to M. Ch. Buttin for this valuable indication of the real purpose of the tresses of the Iberians, and for the information in regard to the French Hussars.

and his hair dressed in the form of the crested helmet to which I have already referred.

The small round shield was apparently the one most frequently used. It is more often referred to than the oblong form, and to judge by the many representations that have come down to us it became, in fact, the typical shield of the Iberians. We find it on coins, on monuments, on figures of soldiers on horseback and on foot, and in instances too many to enumerate. In shape and in size it never varies, although it sometimes appears to be decorated with bosses (fig. 49), or with a simple design of diminutive circles (a characteristic Iberian motive of ornamentation), around the outer edge (fig. 51). Strabo describes this shield when he mentions (III, iii, 6) that the Lusitanian buckler was small, about 2 ft. in diameter, and outwardly convex in form. He states that it was carried suspended from the neck by a strap and that neither handle nor attachments could be seen. The accuracy of his description in regard to the strap is borne out by the figure of the Iberian horseman (a bronze statuette from Despeñaperros, fig. 51), who carries his small round shield on his back, suspended by a strap from the shoulders. The representation is so true to nature that a loop of the strap can be seen projecting beneath the shield, a detail that is not without importance as it would enable the warrior to swing his shield round to the front of his body whenever he desired to use it for protection.

With regard to Strabo's statement that in the case of the round shield neither handle nor attachments could be seen, it is obvious that there must have been some support or grip for the hand, and although no example of a shield—oblong or round—has so far been discovered, as was only to be expected from the perishable nature of the material of which it was made, many handles and grips have been found in cemeteries in different parts of the Peninsula. Umbos, with clips and rings for the attachments, have also been discovered in considerable numbers, and I have, with the permission of the Marques de Cerralbo, illustrated some examples from the Aguilar de Anguita cemetery on pl. XX, *a*, *b*, *c*. The manner in which the Iberians (Lusitanians) made use of their small shields is graphically described by Diodorus Siculus (V, xxxiv), who tells how they 'in times of war carry little targets made of sinews so strong and firm as completely to guard and defend their bodies. In fights they manage these so nimbly, whirling them about here and there, that, with a great deal of art, they avoid and repel every dart that is cast at them.'

Curved Weapon or Falx.

Not the least interesting among the numerous weapons of the Iberians is the curved sickle-shaped implement which can distinctly be seen in the hand of a horseman, who appears to be about to throw or to deal a blow with it, on the reverse

of the bronze autonomous coin illustrated on pl. X and fig. 52. That it was an implement of war there can be no doubt, but it would nevertheless be somewhat difficult to distinguish it from an ordinary sickle used for agricultural purposes if found among objects of antiquity. I know, however, of one case in Spain where it may be classed as a weapon. I refer to the example found at Puig Castellar, near Barcelona, by D. Fernando de Segarra, to whose courtesy I am indebted for its description. It came from a cemetery where the Greek pottery and the swords (La Tène apparently) discovered point to its being contem-



Fig. 52. Horseman with *falx*.



Fig. 53. Stele, Koniah.

porary with the necropolis at Cabrera de Mátaro. Several objects of the same form have been found in the ashes of the Iberian town of Numantia, but there is not sufficient evidence available to allow of their distinction between instruments of war and implements of peace.

There are, however, well-known examples of a similar weapon having been used at about the same period (fifth and fourth centuries B.C.) by soldiers in other countries. A group of warriors sculptured on the west wall of the Gjölbashi-Trysa tomb in Lycia are equipped with a *falx*, a round shield, and a helmet (55), while the bas-relief (fig. 53 [1]) also represents a soldier armed with the same form of sword, and carrying a round shield and a double-headed spear or bident. A further and excellent representation of this curved weapon, but in the hand of a Persian this time, is illustrated in fig. 54. It has been taken from an *alabastron*, published by D. Joaquin Botet (56), which was found at Ampurias, and is now in the Museum at Gerona.

[1] From Perrot and Chipiez, vol. iv, fig. 359.

We may discover a monument or statuette of an Iberian soldier armed with the *falx* before long.

Cuirass or Tunic.

The Iberians were clothed when they went into battle, so historians tell us, whereas the Gauls fought with uncovered bodies (Polybius, III, cxiv). They appear, in exceptional cases, to have worn a *cotte de maille* (when they wore the helmet with triple crest perhaps), but their usual vestment took the form of a short tunic made of linen or of wool like goats' hair (45), which covered the body and reached to the knees. It was provided with sleeves which touched the elbow and was confined round the waist by a broad belt or band, the ends of which were attached with a large rectangular bronze buckle. An under garment was worn next the skin (pl. XX, *e*, *g*, an Iberian horseman). The tunic is clearly shown on several of the bronze statuettes of warriors which were found at the Sanctuary at Despeñaperros (54), while it is figured among the trophies taken from the Iberians on the Carthago Nova coins illustrated on pl. X, nos. 10 and 13. The cuirass may possibly be represented among the trophies on the coin of Carisius shown on the same plate, no. 20.



Fig. 54. Persian with *falx*.

The Bident, Trident, Bow, and Sling.

A weapon of peculiar form, which, for want of a better name, I have called a Bident, can be distinguished in the hand of the horseman on the reverse of the autonomous Iberian coin illustrated on pl. X, no. 3, which is attributed to Setisacum (20). I am not aware that an actual example has as yet been found, nor is there mention of it in history, and speculation as to the use to which it could be put by an Iberian horseman would consequently be idle. Such implements were, however, well known in later times under the name of 'military forks' or *fourches de guerre*, and were employed in the sixteenth and seventeenth centuries by storming parties (52), as well as by the besieged in defending their walls, for which purpose the Iberians also in all probability used them. We learn from Livy (XXVIII, 3), who describes Lucius Scipio's difficulties during the siege of Orinx, 'situated on the borders of the Milesians, a nation of Spain so called,' 'on account of the weapons which fell upon his troops,' 'that men, indeed, who had raised ladders against the wall were either thrust off with forks designed for that purpose, or had iron "wolves" dropped down upon them,

which threatened to pick them up and drag them on to the wall.'[1] MM. Engel and Paris found a considerable number of these forks at Osuna (53).

The TRIDENT can be distinguished as forming part of the composite weapon shown on coin no. 8, pl. X.

The BOW was also a weapon of offence employed by the Iberians, but in this instance again there is no mention of it in history, nor could we expect to find material traces of such a perishable implement. I should indeed have hesitated to include it among their weapons were it not that it distinctly figures, accompanied by a quiver full of arrows, among Iberian trophies on the reverse of a Roman coin struck at Carthago Nova (pl. X). Arrow-heads of bronze and of iron (53) have frequently been found.

The Iberians were world-renowned users of the SLING, which formed part of their military equipment. Strabo tells us (III, iv, 15) that the Iberians never fought otherwise than as *peltastae*, for they were all light-armed and carried only a javelin, a sling, and a sword, as the Lusitanians did. The most skilful slingers of all were those of the Balearic Isles, who although pacific by nature had earned the reputation of being the most adroit slingers in the world when repelling the frequent attacks to which the richness of the soil of their country exposed them. They usually carried three slings made of horse-hair or sinew, which they wound round their heads when not in use—a long one wherewith to reach the enemy from afar, a medium one to use when he was at a moderate distance, and a third and short one for close quarters. The very name of their country was derived from the notoriety of its inhabitants as skilful users of the sling, which they learned to manipulate from their earliest youth so seriously that the boys were only given bread when they had hit the mark with the sling (Strabo, III, v, i).

The use of the sling has survived until to-day in Spain. The boys use it as a pastime, and the herdsmen so skilfully employ it that there is nothing a troublesome bull fears so much as a blow between the horns from a stone slung at him with unerring accuracy from a distance.

Innumerable SLING-STONES or *glandes* have been found in different parts of Iberia. They are usually of lead and of the common form of an 'acorn pointed at both ends' (58). They often bear inscriptions in Roman and Iberian characters, while many show signs of usage. But round stones about the size of the fist, of which MM. Engel and Paris found a large quantity at Osuna, were also employed (53). They also discovered there a *glans* of iron, and three of lead of remarkable size, which they describe as being 'about as large as hens' eggs'. A large number of *glandes*, made of baked earth or clay, have been found in the Iberian city of Numantia. They appear to have been made by the besieged in imitation of those of metal which were flung at them by the Roman besiegers.

[1] I am indebted to Mr. Forsdyke for the correct rendering of this phrase.

The Bit and the Horseshoe.

The Iberians were excellent horsemen and renowned breeders of horses. Their cavalry was mobile and efficient, and its dash is frequently mentioned in history. Their tactics in battle, which are minutely described by ancient historians, called forth the respect and the admiration of their enemies. Sometimes a cavalryman would lead a spare horse, as shown in fig. 49, while at others two men would mount the same horse, a practice by no means confined to the Iberians, and one would dismount and fight on foot when they came into contact with the enemy (Strabo, III, iv, 18). I have already mentioned that, to judge by their equipment as disclosed by the Aguilar de Anguita necropolis, the Iberian cavalry were in all probability but mounted infantry. We are told that when they found that 'they could not fight on horseback they dismounted and fought on foot' (Livy, XXIX, 2), and that 'when the horsemen have routed the enemy, they alight and join the foot and fight admirably' (Diodorus Siculus, V, 33).

The horses were trained to climb mountains and to bend their knees at a given signal (48), without doubt in order that riders might mount more readily.

It cannot, therefore, be a cause for surprise that the Iberians possessed many forms of bits and other gear for guiding their horses, and here once again the Marques de Cerralbo's investigations have thrown much light on their nature and on the manner in which they were employed. The necropolis of Aguilar de Anguita furnishes important evidence on the subject. The movements of the horses were controlled in two different ways: either by a *caveçon*, which was attached to the head-stall and passed round the nose of the animal, as is still the practice in Spain and in Italy; or by a bit which passed through its mouth. Two forms of *caveçon* are illustrated on pl. XXI, nos. 2 and 7. No. 7 is the more elaborate of the two, but the principle and its application are the same in both. Some of the Iberian autonomous coins, and especially a coin attributed to Segisa,[1] distinctly show the gear in place on the horse's head.

The bits were of iron, and were constructed on the principle of the snaffle. They varied considerably in shape, as will be seen by the examples from Aguilar de Anguita shown on pl. XXI, nos. 1, 3,[2] 4, 6, 9, and consisted, as is usual with this form of bit, of two bars joined in the middle, which were prevented from being pulled through the mouth by perpendicular bars (no. 4), by rings (nos. 3 and 9), or by a crescent-shaped support (no. 6). The bars were sometimes ribbed and the links considerably thickened, which rendered the snaffle a much more powerful implement. Some good examples of this pattern have been found at Aguilar and others at Almedinilla.

[1] Delgado, *Nuevo Método*.

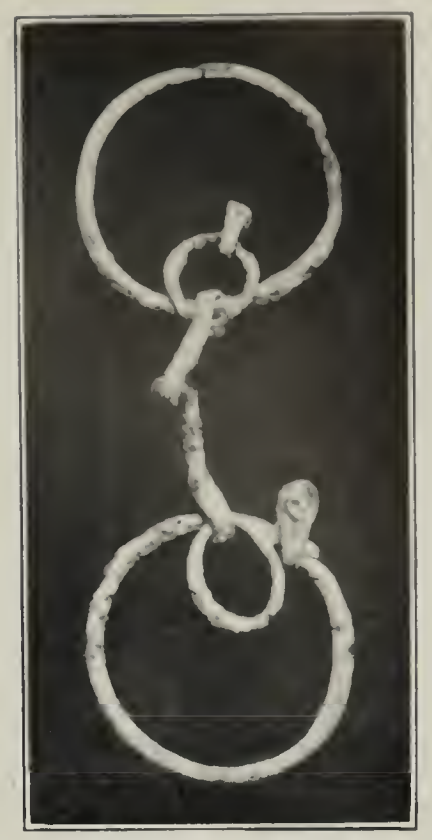
[2] A bit of precisely the same form has been found in France. Général Pothier, *Les Tumulus du Plateau de Gers*, fig. 42.



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2



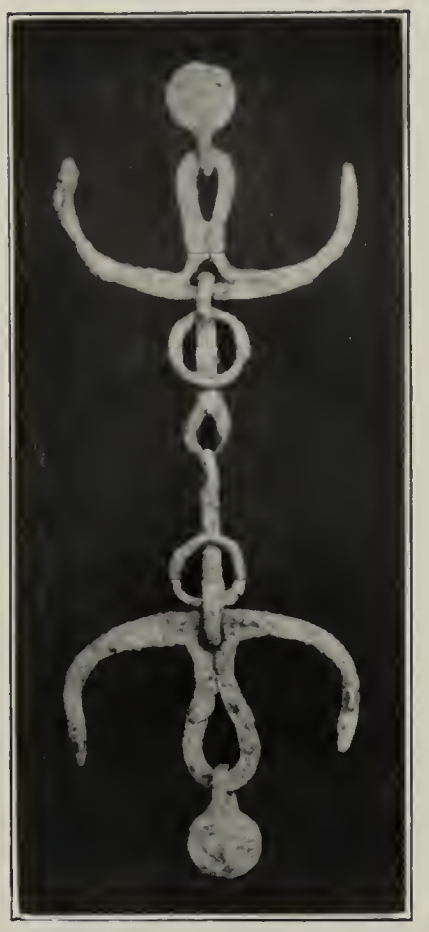
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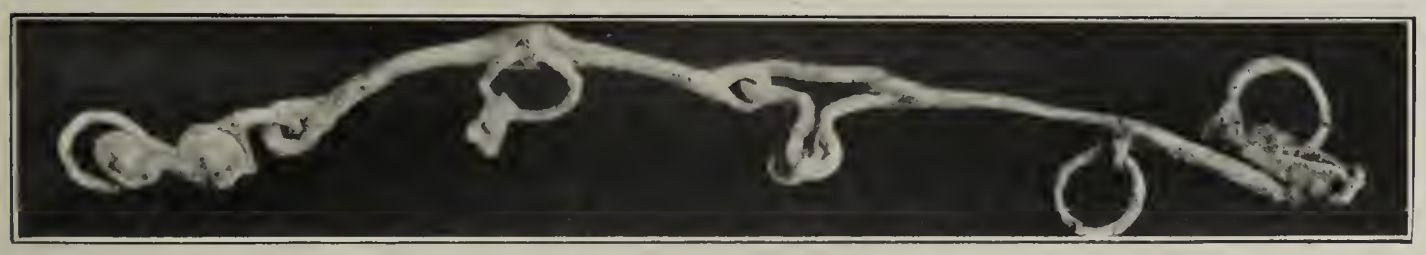
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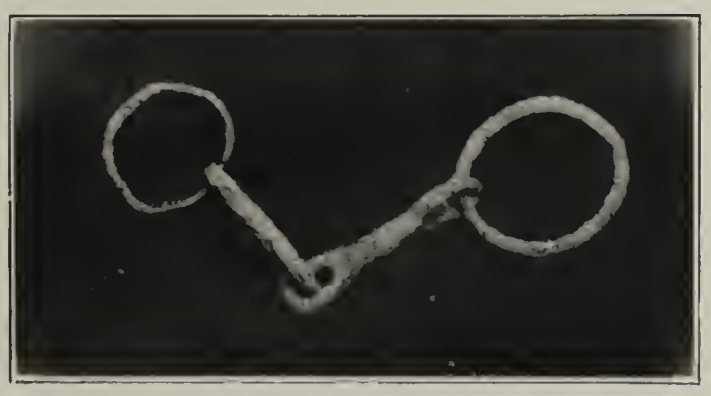
6



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9



10

IBERIAN HORSE-BITS, CAVEÇONS, AND HORSESHOES

1, 3, 4, 6, 9. Horse-bits from Aguilar de Anguita. 5. Bas-relief from Osuna. 2, 7. Caveçons, from Aguilar de Anguita. 8, 10. Horseshoes from Aguilar de Anguita.

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The snaffle with the crescent-shaped supports appears to have become the most generally employed and, indeed, the typical bit of the Iberians; and, like the *soliferreum*, we find it represented during practically the whole of the period under review. I have just mentioned its discovery at the Aguilar and Almedinilla cemeteries, and there is an excellent representation of it on the head of the horse on the bas-relief from Osuna (pl. XXI, no. 5).[1] The method of its attachment to the bridle and the different parts of the head-stall can, in this case, be clearly distinguished. Indeed, the same remark applies to the bronze statuette of a horseman from Despeñaperros (pl. XX, *e*). His horse is bridled with a crescent-shaped bit and head-gear in every respect similar to that of the horse from Osuna.



Fig. 55. Assyrian curved bridle-bit.

It must, I think, be admitted that in this instance again part of their military equipment came to the Iberians from abroad. The crescent-shaped bit had been a distinct feature of the horse's head-gear in other countries long before there can be any trace of its use in Spain. It has been found, but in bronze, at Ronzano in Northern Italy (50) in association with the well-known type of bronze antennae sword which bears that name; while it is unmistakably represented on the admirable Assyrian sculptures which are now in the British Museum (fig. 55). But from wherever the Iberians may have obtained it, they appear to have found it to their liking and to have again made it their own, and it is a somewhat remarkable fact that it has so far only been traced to Assyria, Etruria, and Iberia.

Among the many important and interesting discoveries which we owe to the Marques de Cerralbo is that of nine horseshoes in the Aguilar de Anguita necropolis, two of which are shown on pl. XXI (nos. 8 and 10). They are broad, heavy shoes, pointing to horses of large size with massive hoofs. They show,

[1] By permission of the authorities of the Musée du Louvre.

moreover, a peculiarity which deserves attention: it is that the nails which attached the shoe extend round the outer periphery, a practice which is contrary to modern usage, since it is considered to throw too great a strain on the hoof. The appearance of these horseshoes at Aguilar de Anguita was received at first with no little scepticism, but the two discoveries of horseshoes in an unquestionably Halstattian *milieu* by the Comte J. Beaupré at the Camp d'Afrique in Lorraine (51), the last of which was made in 1912, have thrown further light on the subject, and several leading archaeologists abroad are now prepared to admit the value of the evidence afforded by the Celtiberian necropolis. Nor should it be a cause for surprise that careful horsemen like the Celtiberians, who lived and fought in a rugged and mountainous country, and who were excellent forgers of iron, should have invented or adopted a practical method of protecting the hoofs of their horses from wear.



Fig. 56. Horseman with *signum*.



Fig. 57. Horseman with trumpet.

The Ensign or Standard.

The Iberians made use of standards in war and attached as great importance to them as the peoples with whom they fought did to theirs. There are many historical references to the *signa* of the Iberians, to their rallying to them, to their following them, and, at times, to their abandoning them; but there is only one representation of a *signum* so far as I am aware. It is to be found on the reverse of an autonomous Iberian coin shown in fig. 56. This unique coin is in the British Museum. It is illustrated by Florez and Zobel (57), but not by Delgado or Heiss. The horseman is evidently carrying a *signum* or standard—a wild boar—fixed to the end of a shaft.

The War-trumpets.

We are again indebted to the autonomous coins for a representation of the Iberian war-trumpet (fig. 57). This coin, which is figured in Delgado and in Heiss, and on pl. X, 6, has usually become so indistinct through wear that the

trumpet cannot be distinguished; but it is clearly shown in the specimen illustrated. When held in the hand for use it curved back over the shoulder and bent again like an S, so that the mouth of the instrument faced in the same direction as the trumpeter. We have no means of knowing whether it was made of bronze or of iron. It was probably of bronze. It is unlike the Gaulish trumpet, the *κάρνυξ*, in form, but it shows remarkable analogy to the bronze horns or trumpets that have been discovered in Denmark (fig. 58[1]).

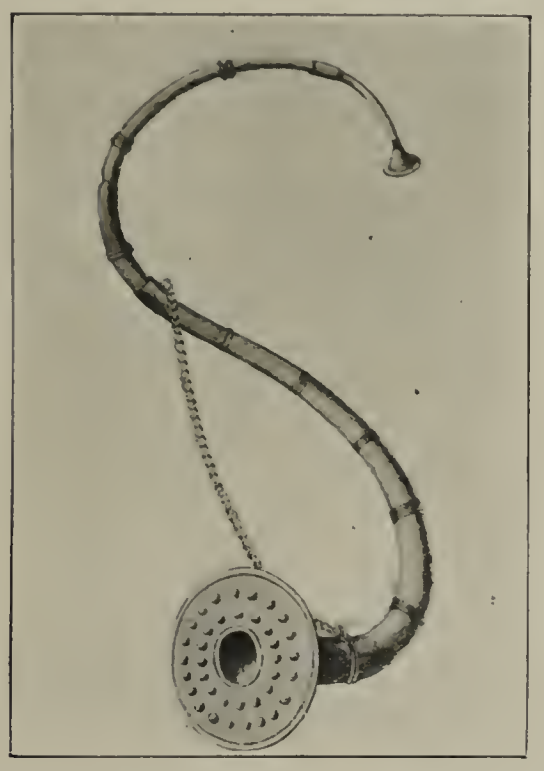


Fig. 58. Bronze trumpet found in Denmark.



Fig. 59. Bas-relief from Osuna.

The Iberians also used trumpets of terra-cotta. Fragments of many specimens have been found in the ruins of the Iberian town of Numantia. They were naturally very fragile and are not easily reconstructed, but they appear from Sñr. Melida's description and illustrations of them (58) to have been almost circular and, generally speaking, to have resembled the Roman *cornu* in shape, from which instrument, indeed, they may have been copied.

MM. Engel and Paris found a bas-relief at Osuna (fig. 59[2]) representing a *cornicen* sounding his instrument. His legs are protected by greaves, which, as historians tell us, the Iberians were accustomed to wear; but it is for other reasons connected with his dress that MM. Engel and Paris pronounce him to be an Iberian and not a Roman soldier.

[1] From *The Industrial Arts of Denmark*, J. J. A. Worsaae, fig. 112.
[2] From *Une Forteresse Ibérique à Osuna* (37), pl. xxvii.

The Bipennis, or Double Axe.

This is another of those Iberian weapons which are pictured on their coins (pl. X, nos. 2 and 17), but of which no example, so far as I am aware, has been found. It was probably in use during a long period, and continued so until the end of the last century B.C., as it figures among the trophies on a coin of Carisius (fig. 60) in 25 to 23 B.C. It is quite possible that it may already have been discovered in an Iberian cemetery, and through ignorance of its purpose have been classified among other objects.



Fig. 60. Coin of Carisius showing dagger, helmet, and bipennis.

And so I reach the end of the long list of the weapons of offence and defence of the Iberians after a profusion of references, descriptions, and comments. But the subject covers a wide field and one which has hitherto received but passing attention from the many authors who have recorded during the past twenty centuries the exploits and the century-long struggles for freedom of the brave and patriotic peoples whom I have grouped together under the generic name of Iberians. And the fact that such sturdy and determined fighters should have possessed so many and such efficient weapons of offence, and have known how to adopt their defensive armour to the requirements of their peculiar mode of attack and to the tactics which they applied on the field of battle, is what might be expected.

I have had to point out that in some of the more notable instances their weapons were not of their own invention, but that, again, should not be a cause for wonder, as their rich country had been the objective during centuries of countless invasions of other and more cultured nations; while their renown as brave and hardy soldiers led to their taking part as mercenaries or allies in many historical campaigns outside their own land. In both instances many opportunities would have been afforded of gaining experience of weapons that were new to them and of making use of them themselves. When, however, they did adopt the weapons of others they always turned them to good account, and in more cases than one they made them their own.

It has been my endeavour to gather together and to put on record all the information obtainable in regard to the weapons of the Iberians, their history, their forms and uses, but not with a view to writing a dogmatic or definite treatise on an attractive but little-known subject. My aim has been rather to cull information so that it may serve as a guide to others who will surely take the subject up again, and who will, I trust, succeed in probing and elucidating many of the questions of origin and chronology which have hitherto remained obscure.

I still have a few words to say on that all-important subject of chronology. I have defined my period as comprising the last five centuries before the Christian era, or rather as extending from the middle of the fifth century to the end of the first century B.C. There can be no question as to where it ended; there may be doubt as to where it began. Everything points, however, to the Aguilar de Anguita necropolis as belonging to the first phase of the period. The grave furniture links up the Aguilar cemetery with that of Avezac-Prat, Plateau de Gers, with those of northern Italy, and with distinct phases of culture which throw back to the Early Iron Age. But although there may have been survival and diffusion in regard to some of the objects found in the Aguilar cemetery (such as the 'antennae' sword and the curved horse-bit to which I have referred), the grave furniture is of an earlier character than that of any other Iberian necropolis which has so far been investigated. Moreover, no coins have been found there. The definition is, of course, purely arbitrary, but I am inclined to assign the cemetery to the last half of the fifth and to the fourth century B.C. From the Aguilar de Anguita it is but a step to the Arcóbriga necropolis. Here again there are only links with the Aguilar necropolis, and then solely in regard to a few swords and to some of the ornaments for women. The grave furniture is otherwise distinct. The La Tène type of sword makes its first appearance, the pottery is different in style and in form, while the fibulae are much more numerous and of the distinctive La Tène I type. As far as I am aware no coins have been found in this cemetery either. I hope that it will not be considered imprudent if I define the period of the Arcóbriga cemetery as comprising the middle of the fourth to the middle or perhaps the end of the third century B.C.

The next chronological phase is to be found at Villaricos, where M. Siret's discovery of Attic vases of the end of the fifth and the beginning of the fourth centuries affords an indication of the date of the interments containing the *falcatas* as being about the middle of the fourth century B.C. This cemetery may have been in use during a century and a half, and perhaps somewhat longer. Roman bronze coins of the time of the Roman Republic have been found here.

The period of the Almedinilla necropolis is more difficult to define. No 'antennae' swords have been discovered there, but the curved horse-bit so frequently met with at Aguilar de Anguita appears at Almedinilla as well. Again, no Greek pottery has been found there, as at Villaricos, but as local imitations of Attic kraters and Roman coins of the time of the Republic have come to light in this cemetery, I propose the third and second centuries as the period of occupation.

At Cabrera de Mátaro there is again transition. One or two *falcata* swords were found there, but the majority of the weapons discovered were distinctly

of La Tène II type. But in this case, again, the Greek pottery fortunately indicates the date, which I would define as ranging from the early part of the third to the middle or perhaps the end of the second century B.C., when the Romans appear to have finally mastered north-eastern Spain. Chronological evidence in regard to the last phase of the period of which I treat is to be sought for and found in historical records, monuments, statues, and coins which, by a general consensus of opinion, can be definitely assigned to the first century before the Christian era.

I readily admit that the periods which I have attempted to define intertwine and overlap in many respects, while they clash by showing distinct and unconnected cultural features, but I have been dealing essentially with the weapons of the Iberians, and those weapons do certainly indicate different phases and different divisions in a period which may be defined in general terms as that of the Second Iron Age. However, and once more, it is not my desire to dogmatize but rather to indicate the broad lines that may be followed should further consideration be given to the subject of my paper from the chronological standpoint.

I do not wish to close without expressing my gratitude for the valuable assistance and advice which I have received from those who have so kindly helped me towards the understanding and elucidation of my subject. To the authorities of the British Museum, for whose unfailing courtesy and readiness to assist me I am sincerely grateful; to Mr. E. J. Forsdyke, whose interpretation of the classical authors has been of great value to me, and whose rendering of the original texts has thrown new light upon points which have hitherto been obscure; to my friends in Spain, D. José Ramón Melida, D. Francisco Alvarez-Ossorio, and D. Antonio Vives, who, during a long series of years, have never ceased to help and encourage me; to M. Louis Siret, who has so generously placed his collections and publications at my disposal for study and reproduction; to M. Pierre Paris, to whom we all owe so much, and whose researches and publications on Spanish archaeology have become classical; to D. Pascual Serrano, who also allowed me to study and make use of his interesting collection; to Mr. A. J. Engel-Terzi, for the admirable drawings of an intricate subject which have so materially helped to throw light upon it; to many others, and, last but not least, to the Marques de Cerralbo, to whom we all owe a debt of gratitude, since without his extensive and persistent researches, his welcome exhibit, and his generosity in allowing me to study his extensive collections and to cull from them everything that might be useful to my purpose, I should not have been able to write a great part of this paper.

APPENDIX

LIST OF PLACES IN THE IBERIAN PENINSULA WHERE THE IBERIAN MACHAIRA OR 'ESPADA FALCATA' HAS BEEN FOUND

Villaricos, Province of Almeria.
Almedinilla.
Mochin (near), Province of Granada.
Bonete (near), Province of Albacete.
Cerro de los Santos, Province of Albacete.
Alcala-la-Real (near), Province of Jaen.
Cabrera de Mátaro, Catalonia.
Despeñaperros, Province of Jaen. (Votive *falcata* in iron, half natural size.)
Province of Cácares.
Lorca (near), Province of Murcia.
Archena (near), Province of Murcia.
Alcacer do Sal, Estremadura, Portugal.

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(20) References to the works of Delgado (17) and Heiss (18) for the coins illustrated on pl. X :

No. 1.	Delgado	Pl. CLXX, 5	attributed to	Segóbriga.
	Heiss	XXXIV, 4	,,	Segubriga.
2.	Delgado	XC, 6	,,	Arzahes.
	Heiss	XXXII	,,	Arsa.
3.	Delgado	CLXXI, 2	,,	Setisacum.
	Heiss	XXXI, 2	,,	Setisacon.
4.	Delgado	CXLVI, 3	,,	Hil. Auca.
	Heiss	XXXI, 9	,,	Aregred.
5.	Delgado	CLI, 5	,,	Ilgone.
	Heiss	XLVIII, 6	,,	Iliberi.
6.	Delgado	CLXXXVI, 2	,,	Apéndice para Arzahes.
	Heiss	XXXII, 1	,,	Lantza.
7.	Delgado	CLIII, 5	,,	Tresona.
	Heiss	XX, 5	,,	Belsinum.

No. 8.	Delgado	Pl. LXXIV	attributed to	Ventipo.
	Heiss	XLVII, 1	,,	do.
9.	Delgado	CLXXIV, 28	,,	Tarraco-Cose.
	Heiss	XVII, 20	,,	do.
10.	Delgado	CX, 19	,,	Carthago Nova.
	Heiss	XXXV, 12	,,	do.
11.	Delgado	LXXIV, 1	,,	Tuririicina.[1]
	Heiss	LIV, 1	,,	Turri Regina.
12.	Delgado	CLXVI, 39	,,	Arze-Saguntum.
	Heiss	LXV, 1	,,	Attribution uncertain.
13.	Delgado	CX, 22	,,	Carthago Nova.
	Heiss	XXXV, 13	,,	do.
14.	Delgado	CLI, 3	,,	Ilgone (cf. 5).
	Heiss	XLVIII, 1	,,	Iliberi.
15.	Delgado	CLIII, 1	,,	Irssona (cf. 7).
	Heiss	XX, 2	,,	Belsinum.
16.	Delgado	CLIX, 25	,,	Osca.
	Heiss	XIII, 2	,,	do.
17.	Delgado	XC, 5	,,	Arzahes (cf. *n*).
	Heiss	XXXII, 2	,,	Arsa.
18-21.	Delgado	XIX, 3–10	,,	Emerita (Augusta).
	Heiss	LX, 3–6	,,	do.

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(49) Diodorus, *op. cit.*, V, xxxiv.
(50) *De quelques mors de cheval italiques et de l'épée de Ronzano en bronze*, par le Comte J. Gozzadini. Bologna, 1875.
(51) Comte J. Beaupré (de Nancy), 'Note sur deux fers à chevaux trouvés en Lorraine dans des gisements hallstattiens,' *Bulletin de la Société Préhistorique Française*, Tome ix, no. 8, août 1912, p. 525.
(52) August Demmin, *Die Kriegswaffen*, p. 836. Leipzig, 1893.
(53) Engel and Paris, *op. cit.*, 37, pl. XXX, XXXVII, and pp. 439–52.
(54) H. Sandars, *op. cit.*, 4. Supplement, pl. XVI[a].
(55) Benndorf and Niemann, *Das Heroon von Gjölbashi Trysa*, pl. VII. Wien, 1889.
(56) D. Joaquin Botet y Siso, *Discursos leidos en la Real Academia de Buenas Letras de Barcelona*, 27 de diciembre de 1908.
(57) Florez, *Medallas etc. de España*. Parte Segunda, Tab. LVIII, 5. Madrid, 1758. Zobel, *Memorial Nnmismatico Español*. Tomo iv, 1877–9. Lam. VIII, 6. Barcelona, 1880.
(58) José Ramón Mélida, 'Excavaciones de Numancia,' *Revista de Archivos*, &c., p. 56. Madrid, 1908.

VI.—*The Use of Samian Pottery in dating the early Roman occupation of the north of Britain.* *By* J. P. Bushe-Fox, *Esq.*

Read 22nd May, 1913.

It is well known that early in the reign of Hadrian a wall was built across Britain from the Solway to near the mouth of the Tyne, and that about twenty years later, under Antoninus Pius, another wall was built still further north, from the Clyde to the Forth. Forty years before the wall of Hadrian, Agricola, in the early years of the reign of Domitian, penetrated even further than the line of the Antonine wall. It is with the period from the first advance of Agricola until the coming of Hadrian that the following paper deals.

Early historians tell nothing of the sites occupied by the Romans in their first campaigns against the northern tribes. No inscription of this period has been found in the north, and in most cases the coins are few and, by themselves, do not form sufficient evidence from which to draw definite conclusions. Great advances have been made, however, of late years in the dating of pottery; most of the northern sites that have been excavated have produced a fair amount of Terra Sigillata or Samian ware, and with the evidence afforded by this it has been possible to assign several sites to the time of Agricola, and others to a period that is certainly pre-Hadrianic.

The question of the dating of many of these sites has already been considered by Professor Haverfield in the *Edinburgh Review*, 1911, by Mr. James Curle in the Newstead report, and by Dr. George Macdonald in his book on the Roman Wall in Scotland. The pottery from Corbridge, Newstead, and Cappuck has also been dealt with in detail, but there does not appear to be any publication in which the pottery evidence for the early occupation of these and other sites has been brought together in a systematic manner. As it is proposed to do so here, it will be necessary to make a few preliminary remarks on the dating of the pottery of the period.

Practically the whole of the pottery we have to deal with may be assigned to the factory of La Graufesenque in South Gaul. When bowls can be definitely attributed to this pottery either by their decoration or the potters' names that

occur on them, they may with some certainty be placed before the end of the reign of Trajan. M. Déchelette, in his well-known work on the Gaulish pottery,[1] tells us that this factory came to an end soon after the beginning of the second century. It is also not probable that in its last years its export was very large, as by that time the competition caused by the new potteries to the north, notably those of Lezoux, must have had a serious effect upon its trade. The Germans, who have done so much careful excavation in the Rhine district, and have had so many opportunities of dating pottery, seem to be unanimously agreed that these late Graufesenque types did not survive into the time of Hadrian. Herr Dragendorff tells me that he knows of no instance of La Graufesenque pottery appearing in Hadrianic deposits. Professor Bosanquet also has informed me that he found none of this pottery in the Camp of Houseteads on Hadrian's wall. The only evidence against this dating is the presence of a few pieces of this type at Chesters, which is supposed to have had its beginning in the time of Hadrian. Chesters has not been completely excavated, and it is not impossible that there may have been an earlier fort there (see p. 303). It should always be remembered that there must have been instances where pots survived at least twenty or thirty years, and that in dating by pottery one must date by the mass and not by the individual piece.

The two principal decorated Terra Sigillata shapes that we have to deal with are nos. 29 and 37 as given by Dragendorff in the *Bonner Jahrbücher*, vols. 96 and 97. Shape 29 has the decoration divided into two bands or friezes by a sharp bend in its side. For examples of this see figs. 2, 3, and 27. Shape 37, on the other hand, has no sharp bend, but is hemispherical in form, the gradual curve of the side making it possible for the decoration to be in one band. For examples of this shape see figs. 12, 14, 22, and 26. Shape 29 appears to have come into existence soon after the beginning of the first century.

Shape 37 began to appear before the end of the reign of Nero, but does not occur in any quantities until the seventies. At Rottweil, which was founded about the year A. D. 73, there is a large quantity of shape 29. At Pompeii, destroyed A.D. 79, we find 29 and 37 side by side; at Cannstatt, which must have been occupied only shortly afterwards under Domitian, shape 29 is entirely absent, shape 37 having taken its place. This disappearance of shape 29 is also borne out by the evidence afforded by the German Limes forts that were founded under Domitian, notably Waldmoessingen, Heidenheim, Okarben, Gnotzheim and Echzell, where only a few fragments of that shape have been found. It may therefore be assumed that where shape 29 is found in any quantity the date is probably not later than the early years of the reign of Domitian.

[1] *Les Vases céramiques ornés de la Gaule romaine*, vol. i, pp. 102, 103.

The arrangement of the ornamentation on the early 37 was often the same as that on shape 29; that is to say, in two separate bands or friezes. For good examples of this, see figs. 12, 13, and 49.

The following patterns are common on bowls with the band decoration, which in the case of shape 37 may be either double or single:

1. The scroll, as on the lower band of fig. 2.
2. The foliage scroll with leaves or buds, as on the lower band of fig. 13.
3. The foliage scroll with the lower lobes filled with subjects that have no connexion with the scroll itself, such as figs. 1, 34, 37, 40, 49, and 52.

The chief characteristic of these early foliage scroll patterns, which makes them easy to distinguish from the second-century type, is that their big leaves are nearly always in pairs with a much smaller leaf or bud, and that they diverge and point in different directions.[1]

The scroll pattern on shape 29 in fig. 2 is not often met with on 37, and when it does occur it generally denotes a date earlier than A. D. 90.

Other common band decorations are:

1. The running animals with plants or fan-shaped ornaments, as in figs. 3, 14, 16, and 38.
2. Festoons or demi-medallions containing birds, volutes, or spirals, and in some cases a tendril ending in a dart-shaped ornament which may represent a bud or leaf. For examples of these, see figs. 2, 12, 13, 14, 26, 28, 33, 46, 49, and 58.
3. Mixed decoration generally in small metopes or panels enclosing such patterns as the cruciform, arrowhead, arrowhead and oblique lines, running animals, medallions enclosing animals, figures, etc. (see figs. 4, 12, 27, and 42).

With all these foregoing types there are often narrow decorative bands or wreaths, sometimes composed of leaf patterns (see figs. 2, 3, 14, 16, 48, and 49).

These patterns are common to both 29 and 37, and when occurring on the latter may be placed in the last quarter of the first century, or in the very early years of the second. Good workmanship, such as on figs. 12, 13, and 49, is probably earlier than the coarser work on pieces such as figs. 16, 18, and 19.

The following forms of decoration also occur on shape 37 in the same period:

1. Metopes, which take up the whole depth of the ornamented space.
2. Mixed decoration, which may include any of the following: metopes, small metopes or panels, medallions, demi-medallions and figures, animals, or genre subjects.

[1] For second-century types, see Déchelette, vol. i, pl. xi.

The cruciform pattern is a common one in the metope decoration, but this was also used in different forms until at any rate the middle of the second century. However, when it is found in connexion with Graufesenque types or with metopes with corner tendrils, it may be safely placed before the end of the reign of Trajan.

In the bowls with mixed ornamentation we have to rely either on identifying the figures or animals as Graufesenque or the ornamentation as definite first-century type, such as that used on the bowls with the band decoration; for instance, (1) the arrowhead with oblique lines, or (2) the demi-medallions enclosing spirals or volutes ending in either the rosette or the dart-shaped bud or leaf. Fig. 10 is a good example. Here we have the arrowhead and oblique lines, the cruciform pattern and the corner tendrils, and, above, one of the narrow ornamental bands or wreaths. These bands or wreaths by themselves cannot be definitely assigned to the first century, as they also occur at a later date. Other examples of this mixed decoration may be seen in figs. 15, 17, 20, 26, 35, and 56.

The cylindrical bowl, shape 30, which appears in the first century and lasts into the second half of the second, has very similar ornamentation to that of shape 37. Arcades and metopes enclosing figures and the cruciform pattern are common subjects on this shape (see figs. 31 and 51).

There are two other decorated shapes that appear in small numbers at this period, viz. Déchelette 67 and Walters 78. The latter of these appears to be almost entirely confined to about the last quarter of the first century. Of the former not much is known. It certainly occurs in the latter part of the first century, and is said to come from Lezoux, but examples have been noticed that have decoration very similar to that of La Graufesenque. There is also a form that is transitional between 29 and 37. It has the carinated side of 29 and the plain rim of 37. It appears to belong to the late Domitian and Trajan period, and examples have been found at Lezoux [1] (see figs. 25 and 36).

In the following description of the pottery I have endeavoured, wherever possible, to identify the subjects with those illustrated in Déchelette's work, and in each case have given the name of the factory in which he believes the particular decoration was used and his reference number.

All the numbers of the shapes are those of Dragendorff in the *Bonner Jahrbücher*, vols. 96 and 97, and of Walters in the *Catalogue of Roman Pottery in the British Museum*.[2]

[1] Déchelette, vol. i, p. 179.

[2] For illustrations of pottery of this period see (1) Déchelette on the pottery from Pompeii, *Les Vases céramiques ornés de la Gaule romaine*, vol. i, pp. 102, 103; (2) Professor Knorr's books on the Terra Sigillata from Rottenburg, Rottweil, and Cannstatt-Köngen; (3) the Domitian forts in the German Limes reports; (4) the Newstead report, by James Curle, F.S.A.; (5) the Gellygaer report, by John Ward, F.S.A.



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Carlisle.

1. Shape 29. Lower band, foliage scroll pattern with small rabbits and birds. The lower lobes filled alternately with the fan-shaped ornament over an animal eating a man—probably Déch. 967, La Graufesenque—and the arrowhead pattern. Somewhat similar scroll patterns may be seen in Knorr, *Rottweil*, pl. I and II, which he dates to the time of Vespasian.

2. Shape 29. Upper band with festoons containing tendrils ending in the dart-shaped bud or leaf, see Knorr, *Rottweil*, pl. IV, fig. 12. Lower band with scroll pattern very similar to some from Pompeii, Déch., vol. i, p. 97, fig. 65. Also two narrow ornamental leaf bands or wreaths.

3. Shape 29. Upper band with scroll pattern, very similar to the last. Lower band with running animals and fan-shaped plant, see Knorr, *Rottweil*, pl. I, fig. 7. Also two narrow decorative bands or wreaths.

4. Shape 29. Upper band, scroll pattern with tendrils ending in dart-shaped buds or leaves. Lower band, decoration in metopes enclosing alternately the cruciform pattern and running animals over bunches of poppy heads. This has the name NIGRINI on the inside. Knorr places this potter in the time of Vespasian (*Rottweil*, p. 64). The stamp occurs on the early sites of Hofheim and Wiesbaden.

5. Shape 29. Fragment of lower band with running animals and fan-shaped ornament. Decorative band below.

6. Shape 29. Fragment of lower band showing foliage scroll pattern, the lower lobes filled with a cruciform pattern composed of bunches of leaves and tendrils, see Knorr, *Rottweil*, pl. II, fig. 1. Narrow decorative S-shaped band above.

7. Shape 29. Lower band with festoons containing leaves; also the cruciform pattern in a metope. On the inside is the stamp COSIRV.[1] This also occurs on a 29 and an 18 from Camelon, on 18 in the early period at Newstead (*Report*, p. 236), on 27 at Neuss, and on 18 at Wroxeter.

8. Shape 29. Lower band, a foliage scroll pattern with the lower lobes filled with a decorative design composed of poppy heads, leaves, and tendrils (see fig. 61). A narrow band of leaves above. Very similar to fig. 6. Potter's stamp on inside OFCREST (reversed). La Graufesenque potter, Déch., i, p. 81. Given as early Vespasian by Knorr, *Rottweil*, p. 59. Occurs on the early sites of Neuss, Vechten, and Hofheim.

9. Shape 29. Fragment showing part of lower band. Decoration in panels (1) the arrowhead and oblique lines, (2) a running animal; ornamental band above. Potter's stamp on inside not very legible, but probably OF · PASSENI.

[1] This stamp, which probably represents Cosius et Rufus or Rufinus, comes from La Graufesenque (Déch., i. 83, 84).

La Graufesenque potter, Déch., i, p. 81. Occurs on the early sites of Neuss, Wiesbaden, and Vechten. The stamp is also on another 29 from this site.

10. Shape 37. Mixed decoration in metopes. The cruciform pattern; medallion containing a lion, the corners of the metopes filled with tendrils. In small metope or panel arrowheads and oblique lines. Ornamental band below egg-and-tongue border.

11. Shape 37. Fragment showing portion of cruciform pattern.

12. Shape 37. Band decoration. Upper band divided into panels containing (1) a medallion containing a rosette, small rosettes in corners; (2) a running lion; (3) the arrowhead pattern. Lower band, demi-medallions or festoons containing tendrils ending in dart-shaped buds or leaves. For very similar patterns to the last, see Knorr, *Rottweil*, pl. XIII, figs. 10 and 11; *Rottenburg*, pl. II, fig. 5, and pl. IV, fig. 11; *Cannstatt*, pl. X, fig. 8, and pl. XV, fig. 10.

13. Shape 37. Band decoration. Upper band, demi-medallions or festoons containing volutes and birds (see Knorr, *Rottweil*, pl. I, fig. 10, and pl. XV, fig. 5; *Cannstatt*, pl. XV, fig. 13). Lower band, foliage scroll pattern.

All the above, with the exception of no. 13, were found when digging operations were in progress for making the foundations of the Tullie House Museum and Library, which are situated about half-way between the Cathedral and Castle.

In this group there are altogether fragments of about fourteen bowls of shape 29, and four early bowls of shape 37.

The following potters' marks also occur in the same group:

On shape 29.

OF·COELI. La Graufesenque, Déch., vol. i. 83. Occurs on a 29 at Rottweil, where it is placed in the early Vespasian period (Knorr, *Rottweil*, p. 59); on 27 and 31 at Neuss, and on a 29 at Wroxeter.

OFCREST. See no. 8 above.

OF·RVFINI. La Graufesenque, Déch., vol. i. 84. Occurs on 27 and 29 at Rottweil, where it is placed in the time of Vespasian (Knorr, *Rottweil*, p. 65). Has been found at Montans, Déch., i. 136, and occurs many times on early sites such as Neuss, Wiesbaden, Vechten, Hofheim.

On shape 27.

OF·CALVI. La Graufesenque, Déch., i, p. 83. Occurs at Rottweil, where it is placed in the time of Vespasian (Knorr, *Rottweil*, p. 58). It has been found many times on early sites such as Neuss, Wiesbaden, Vechten, Camelon.

OF·RVF (twice). La Graufesenque, Déch., i, p. 84. Occurs at Neuss and Wiesbaden.

SECVNDI (three times). La Graufesenque, Déch., i, p. 81. Occurs at Rottweil, where it is placed in the early Vespasian period (Knorr, *Rottweil*,

pp. 65-6); at Newstead, in the early period (*Report*, p. 240); on early sites such as Neuss, Vechten, Hofheim.

OF·SILVINI. La Graufesenque (Déch., i. 85).

The stamp SILVINVS F occurs at Hofheim.

On shape 18.

OF·CALVI. See above.

O·FRONTI. La Graufesenque, Déch., i. 81. Occurs at Rottweil, where it is placed in the period early Vespasian to Domitian; at Newstead, in the early period (*Report*, p. 236); at Camelon on 29. Also several times at Neuss, and at Wroxeter on 18.

GERMANI OF. La Graufesenque, Déch., i. 81, 83. Occurs at Pompeii (Déch., i. 96); several times at Rottweil, where it is placed in the early Vespasian period (Knorr, *Rottweil*, p. 261). Found on the early sites of Neuss, Wiesbaden, Hofheim.

LOGI/. Probably part of Logirnus. La Graufesenque, Déch., i. 84. A mould with this name was found at Montans. Occurs at Neuss, Vechten, and in connexion with pottery of the time of Agricola at Corbridge (1909, p. 68).

OFMONTANF. A stamp of the potter *Montanus*. La Graufesenque, Déch., i. 84. Occurs at Rottweil, where it is placed in the time of Vespasian (Knorr, p. 64). Also occurs at Neuss and Hofheim.

NICEPHOR·F. This stamp has been found at Corbridge, where it is placed in the first century, at Neuss on 27 twice, and at Wroxeter on 18.

/SILVINI. See above.

OFVITA. La Graufesenque, Déch., i. 81, 85. Occurs at Rottweil, where it is placed in the early Vespasian period (Knorr, *Rottweil*, pp. 67–8); at Newstead, in the early period (*Report*, p. 242); several times at Neuss, Xanten, Hofheim, Wiesbaden, Vechten, Wroxeter.

OF·PONTI. La Graufesenque, Déch., i. 84. On shape 29 at Rome (Déch., i. 294). Several times at Neuss and at Hofheim.

OFCALVI occurs on a flat dish with the quarter round fillet. See above.

The large proportion of shape 29 in comparison with 37 suggests a date rather before than after A.D. 80. There also seems no reason why any of the potters' stamps should not occur between A.D. 70 and 80. They all appear to belong to the second half of the first century.

There are also several other pieces of early pottery in the Tullie House Museum, but enough is not known about their origin to make it permissible to draw any conclusions from them. I illustrate only no. 13 as it is a good example of the early band decoration.

I have to thank Mr. L. Hope for the permission to take these photographs, and for his great kindness in assisting me.

NETHER DENTON.

14. Shape 37. Band decoration; upper band, running animals with tendrils above and fan-shaped ornament (see fig. 3 and Knorr, *Rottweil*, pl. II, fig. 1; pl. XIV, fig. 6; *Rottenburg*, pl. II, fig. 9). Lower band with demi-medallions or festoons enclosing tendrils with dart-shaped bud or leaf (see nos. 2 and 12). Narrow ornamental band between.

15. Shape 37. Fragment showing eagle in medallion in a metope with corner tendrils. Portion of arrowhead pattern on left.

16. Shape 37. Band decoration; coarse piece with animal and fan-shaped ornament and narrow ornamental bands above and below (see fig. 14).

17. Shape 37. Metope decoration. Winged Victory (Déch. 479), La Graufesenque. Running dog over demi-medallion or festoon enclosing bird. Diana and fawn, which seems to be Déch. 63, La Graufesenque. Narrow ornamental band beneath.

18. Shape 37. Band decoration; upper band, scroll with animal over arrowhead pattern in lower lobe (see fig. 1 and Knorr, *Rottweil*, pl. XV, fig. 12; *Cannstatt*, pl. XI, fig. 6). Lower band with running animals and fan-shaped ornament (see figs. 14, 16).

19. Shape 37. Band decoration; upper band with demi-medallions or festoons enclosing birds and volutes (see fig. 13). Lower band with running animals (dog, 196, La Graufesenque) and fan-shaped ornament (see figs. 14, 16, 18).

20. Shape 37. Mixed decoration; animal attacking man with spear, arrowheads and oblique lines underneath animal. Part of corner tendril in metope to left, and arrowhead pattern to right. Narrow leaf band below. There is a somewhat similar piece in Knorr, *Cannstatt*, pl. IX, fig. 1, with stamp given as BIRACIL, time of Domitian. The man appears to be Déch. 634, La Graufesenque.

21. Shape 37. Decoration metopes divided by lines ending in a rosette. Just below egg-and-tongue part of the stamp IANVF. This potter appears to have worked at Heiligenberg and Rheinzabern. Knorr places him at the beginning of the second century (*Rottweil*, p. 62), and Forrer places him between 90–135 (p. 100).

22. Shape 37. Lion attacking a man on horseback who has just thrown a spear. A narrow leaf band or wreath below.

23. Shape 37. This has the two-band decoration, but the arrangement is not in the usual La Graufesenque style. Upper band shows part of a running animal over a rosette. Lower band, two dolphins.

24. Shape 37. Very mixed ornamentation, consisting of the cruciform



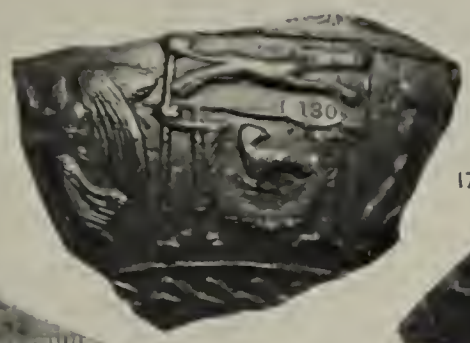
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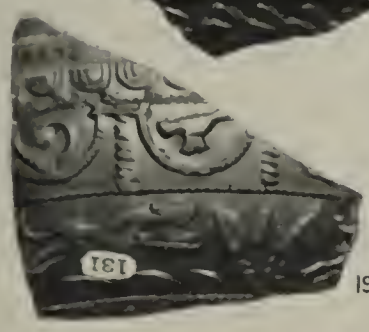
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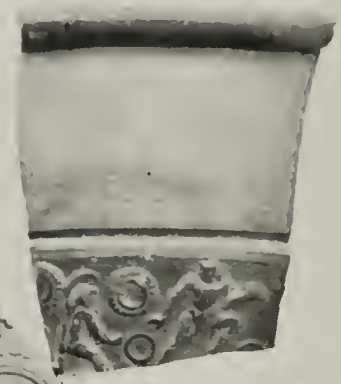
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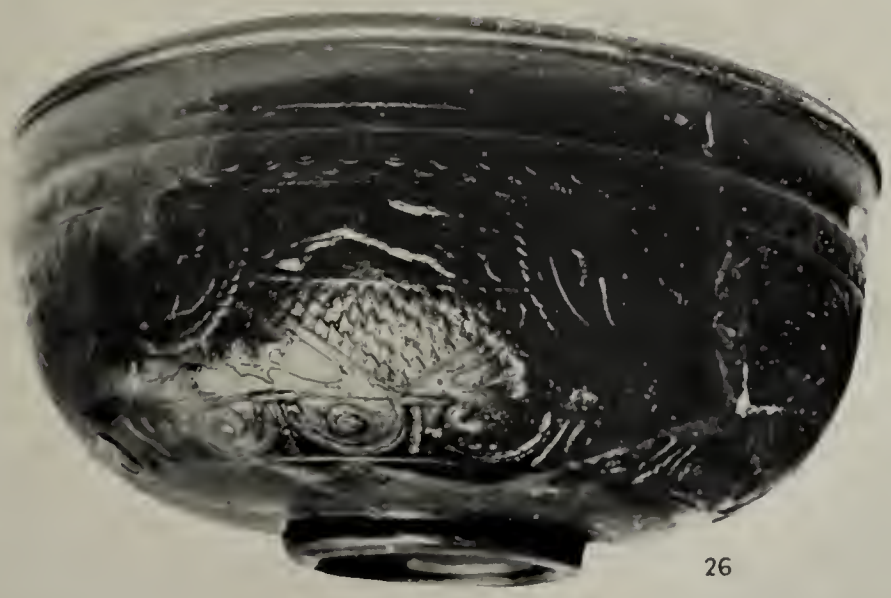
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pattern, a nude figure, animals, and decorative ornaments of different descriptions. A narrow leaf band or wreath below.

25. Two fragments of a bowl that has the sharply carinated side of shape 29 and the rim of shape 37 (see p. 298). Upper band, oddly arranged patterns and ornaments, rosettes, small beaded circles, etc. Fighting cock (Déch. 1025). In the semicircle a beardless mask, full face (not given by Déchelette or Ludowici) (see no. 36). Man wearing helmet—also not to be found. Man walking to right (Déch. 403, and Ludowici, M 252). Lower frieze, metopes containing ornamental concentric circles framing a full-face mask—as in upper band. Small circles or rosettes occupy the corners of the metopes.

From this site there are pieces of at least fifteen definitely early bowls of shape 37, two pieces of shape 18, six of shape 27, and one bowl with the barbotine flange near the rim (Newstead report, pl. XXXIX, no. 11).

Nos. 14, 16, 18, 19 have the transitional band decoration, but of a coarse and probably late character. Nos. 15, 20 have characteristics of the pottery of the last quarter of the first century. No. 21 is probably Trajanic or later. Nos. 22, 23, 24 may well belong to the Trajanic period, but might also be slightly later.

A fair number of coins were found in the course of the excavations. They included a number of copper coins and 16 denarii; none of these is mentioned as being later than Trajan.

To judge by the pottery found, this site probably dates from late Domitian until the end of the reign of Trajan or possibly a little later. Nether Denton is fifteen miles east of Carlisle, and lies between Lanercost Abbey and Gilsland, at a short distance south of Hadrian's wall (*Cumb. and West. Trans.*, vol. i, p. 88).

Chesters.

This site is situated on the west bank of the North Tyne, and is one of the stations on Hadrian's wall. No definite conclusions can be drawn as to the date of the first occupation of the site. At present it has not by any means been completely excavated, and it is questionable whether the earliest occupation level has ever been reached. The first construction of the fort is generally attributed to the reign of Hadrian, but there are several pots in the Chesters Museum which can hardly be placed at such a late date. A curious feature of the stie is that a ditch has been discovered running across and under the middle of it. This ditch appears to have been a continuation of the ditch of the wall, and indicates that there must have been some form of earlier occupation than that shown by the remains of the fort as excavated. As matters stand it would be useless to try to draw any conclusions, and we can only await the result of further

excavations. These early pieces of pottery may, of course, only be survivals, but the fact of their occurrence is worthy of note.

One bowl is illustrated here, no. 26. It has the characteristic of the end of the first century, viz. the arrowhead pattern, the running animals, decorative tendrils ending in hares, the fighting goose, and a band of demi-medallions or festoons containing volutes and birds.

There are also two other bowls with the transitional band decoration of running animals and fan-shaped ornaments of a type common in the last quarter of the first century.

Corbridge.

This site, perhaps the most important in Northern Britain, is situated on the Roman road from York to the Antonine wall in Scotland. It lies on the north bank of the Tyne, about 2_2 miles south of Hadrian's wall.

The site is now under excavation, but enough pottery has been found to prove conclusively that there was an occupation in the time of Agricola; nos. 26 to 31 belong to this period. The question of the Domitian-Trajanic occupation has been dealt with in the summary.

A few typical examples of the pre-Hadrianic pottery from this site are enumerated below. For further particulars, see the Corbridge reports in *Archaeologia Aeliana*.

27. Shape 29. Upper band divided into panels containing (1) running animals, (2) the arrowhead pattern. A very similar pattern may be seen in Knorr, *Rottweil*, pl. III, fig. 1. Fig. 2 on the same plate has a similar lower band to the one on this bowl. Knorr places these in the time of Vespasian.

28. Shape 29. Lower band with demi-medallions enclosing volutes. Narrow leaf band above. See Knorr, *Rottweil*, pl. I, fig. 10, where a very similar piece is shown and placed in the time of Vespasian.

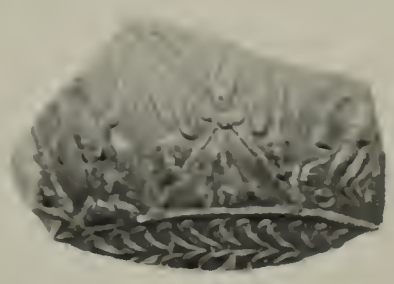
29 and 30. Shape 29. Upper band with scroll pattern very similar to some from Pompeii. Lower band same as 27 (Déch., vol. i, p. 97, fig. 65).

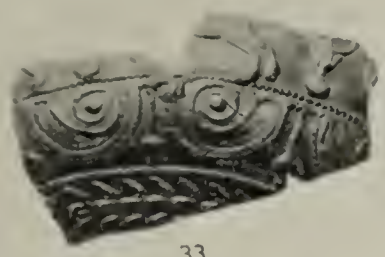
31. Shape 30. This was found in connexion with some of the above pieces of 29, and may be assigned to the same date. Similar cupids may be seen on a 29 of the time of Vespasian (Knorr, *Rottweil*, pl. III, fig. 1).

Nos. 27–31 are reproduced on a smaller scale than the other photographs.

32. Shape 37. Metopes containing the cruciform pattern and figures. Narrow leaf band or wreath below.

33. Shape 37. Band decoration; upper band with running animals and trees. Lower band, demi-medallions or festoons containing volutes, see fig. 28. Below, narrow ornamental leaf band or wreath.


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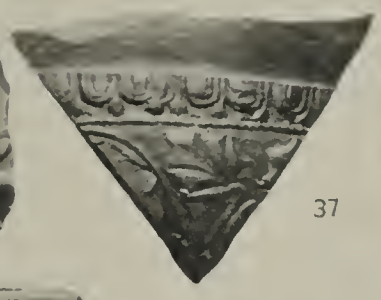

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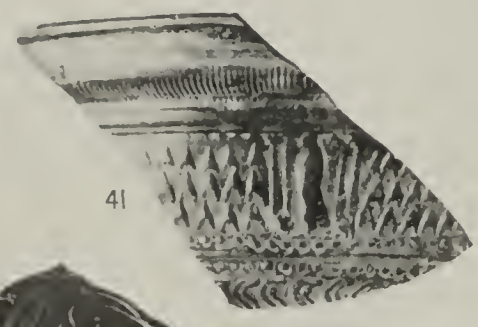

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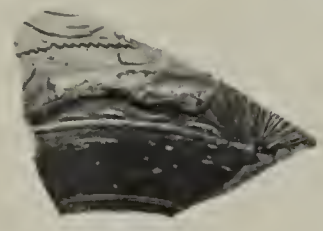

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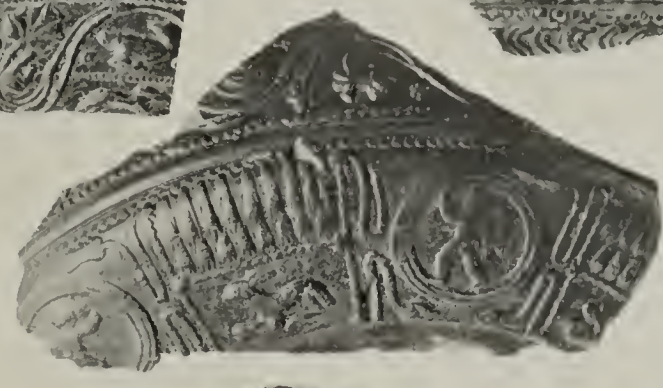


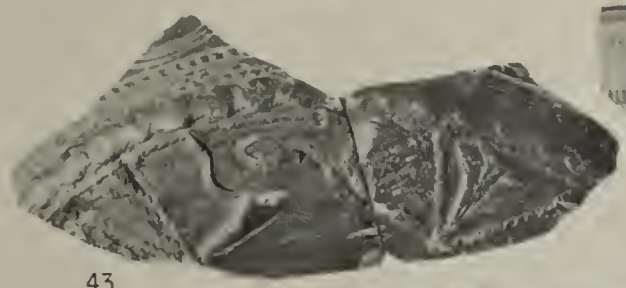

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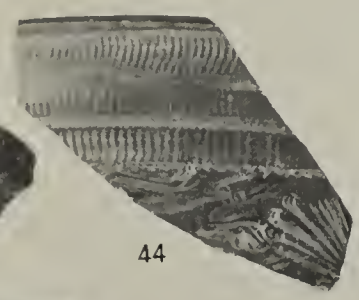

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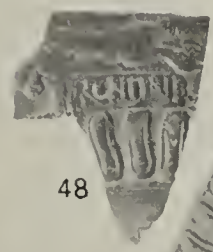

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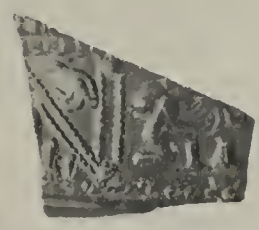

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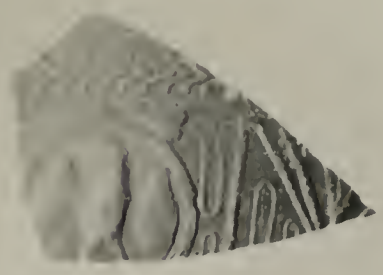

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SAMIAN POTTERY FROM THE NORTH OF BRITAIN

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34. Shape 37. Foliage scroll pattern. The lower lobe filled with a decorative ornament with running dog below. Birds in the interspaces (see figs. 1, 18, 40, and Knorr, *Rottweil*, pl. I and II; *Cannstatt*, pl. XI, fig. 6).

35. Shape 37. Mixed decoration. Stag is either Déch. 862, La Graufesenque, or 845 (see also Knorr, *Rottenburg*, pl. V, fig. 8). Demi-medallion or festoon enclosing a tendril ending in dart-shaped bud or leaf (see figs. 2, 12, 14). Portion of a medallion enclosing animal. Corner tendrils. Band of running animals below.

36. Fragment of a bowl that has the sharply carinated side of shape 29 and the rim of shape 37 (see p. 298). Upper band, medallions enclosing alternately small beaded circles (Déch. 1182, Lezoux) and a full-face bearded mask as in no. 25 (not given by Déchelette or Ludowici), small rosettes at intervals. Lower band, a foliage scroll with a band of leaves or wreath below, small rosettes at intervals.

This form is an uncommon one. It is interesting to note that on the two bowls illustrated here, nos. 25, 36, the same mask, rosettes, and small beaded circles occur. This probably indicates that the bowls are both the work of the same potter. The Corbridge example was found in a deposit in which were a few pieces of shape 29 and a large amount of transitional shape 37 of the late La Graufesenque type. The deposit appears to belong to the period of late Domitian and early Trajan.

South Shields.

37. Shape 37. Three pieces; foliage scroll with running animals in the lower lobes (see fig. 34). For very similar leaf pattern see Knorr, *Rottweil*, pl. VI, fig. 4.

38. Shape 37. Band decoration; upper band, running lion and fan-shaped ornament, tendril ending in leaf or bud above lion, also portion of the oblique line pattern. For a very similar ornament on a shape 29, see Knorr, *Rottweil*, pl. II, fig. 1, of the time of Vespasian. Lower band, demi-medallions or festoons enclosing tendrils (see fig. 28).

39. Shape 37. Fragment showing running animal and fan-shaped ornament (see figs. 14, 18, 19).

There is also another piece of a 37 bowl with the top of a cruciform pattern that appears early.

No. 37 might well belong to the period of Vespasian or Domitian. Nos. 38, 39 are more probably late Domitian or Trajan.

The amount of early pottery is too small to justify any definite conclusions, but the fact of its occurrence is worthy of note.

This site is situated on the south bank of the Tyne, not far from its mouth.

NEWSTEAD.

40. Shape 29. Upper band; scroll pattern very similar to scroll on piece from Pompeii (Déch., vol. i, p. 97). Lower band, a foliage scroll with small bird, the lower lobes filled with running animals and the arrowhead pattern (see figs. 1, 18, 34).

41. Shape 29. Upper band with the arrowhead decoration and what appears to be a small draped figure. Lower band, the S-shaped ornament.

42. Shape 29. Upper band, a scroll pattern with tendrils ending in the dart-shaped bud or leaf. Lower band, mixed decoration in panels. Medallions containing cupids. Tendrils filling the corners of the panels. Subdivided panel containing the arrowhead pattern with hare beneath, which appears to be Déch. 951, La Graufesenque.

43. Shape 29. Lower band; arrowheads and oblique lines. Lion with tendril ending in leaf above and a decorative bunch of leaves in front. For similar lion and tendril see Knorr, *Rottweil*, pl. II, fig. 1; time of Vespasian, a narrow band or wreath of leaves above.

44. Shape 29. Fragment of upper band showing running animal with tendril above and fan-shaped ornament.

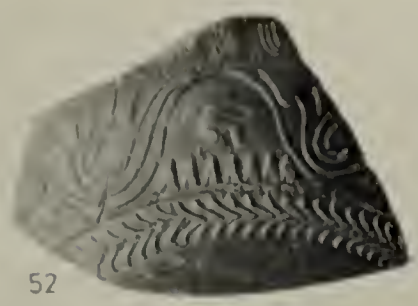
45. Shape 29. Upper band, panels enclosing (1) two birds and a snake, and (2) a chevron pattern. Lower band appears to have been demi-medallions or festoons containing volutes.

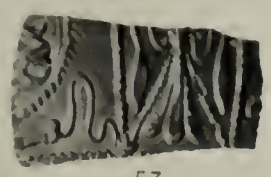
46. Shape 29. Lower band with demi-medallion or festoon enclosing tendrils with dart-shaped leaves or buds (see fig. 2). Also a band of the S-shaped ornament.

47. Shape 29. Fragment of upper band showing decoration in panels containing (1) a kneeling cupid and (2) a fighting goose, with the oblique lines and arrowhead pattern.

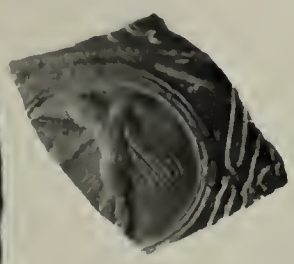
48. Shape 29. Two fragments of lower band and base with running animals and corner tendrils ending in leaves. Narrow ornamental band beneath. Also on the smaller fragment the mark FRONTINI. Knorr gives this as early Vespasian to Domitian (*Rottweil*, p. 60). La Graufesenque potter, Déch., vol. i. 81. Occurs at Camelon on shape 29, and at Neuss and Wroxeter on shape 18.

49. Shape 37. Band decoration; upper band, foliage scroll, birds and ornament, with two volutes and bunch of three leaves in lower lobes—very similar ornament to Knorr, *Rottweil*, pl. XV, fig. 2. Lower band, festoons or demi-medallions enclosing birds. Bird turned to left, Déch. 1033, La Graufesenque (see Knorr, *Rottweil*, pl. XVI, fig. 1). Below, a narrow ornamental band.


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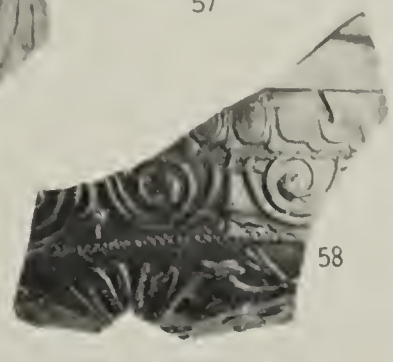

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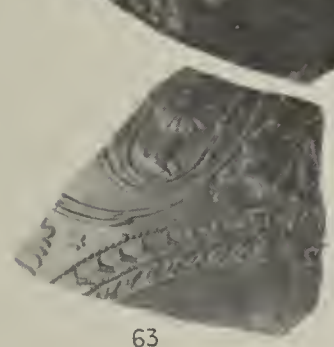

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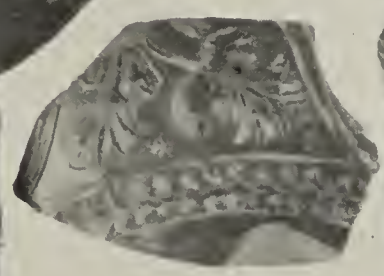

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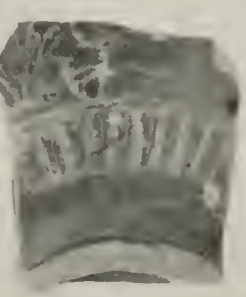

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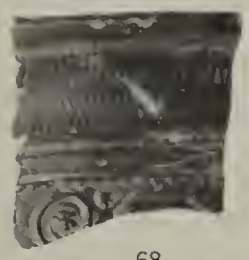

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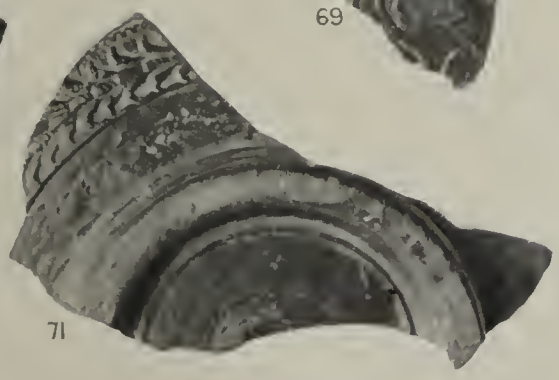

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50. Shape 37. Medallion enclosing an eagle in a metope with corner tendrils. Also a cruciform pattern. Narrow ornamental band above. Eagle, 982, La Graufesenque. This eagle occurs on a pot from Pompeii.

51. Shape 30. Decoration in panels. (1) The cruciform pattern; (2) two fighting gladiators over an ornament, very similar to that on 47; also corner tendrils. The same gladiators occur on a pot from Pompeii.

52. Shape 37. Band decoration; foliage scroll pattern. The lower lobes filled in one instance with cupid, and in another with an animal over arrowheads. Narrow ornamental leaf band below (see fig. 40).

53. Shape 37. Small fragment with portion of cruciform pattern, a metope with corner tendrils, and the first four letters of the name CRVCVRO in a medallion. A South Gaulish potter, probably of Banassac, belonging to the time of Vespasian (*Rottweil*, p. 60).

54. Shape 37. Fragment with fighting geese, a small eagle, and the oblique lines with arrowheads. Narrow ornamental leaf band or wreath below. Geese appear to be Déch. 1016, Lezoux.

55. Shape 37. Medallion containing cupid in a metope with corner tendrils. Cupid, Déch. 353, La Graufesenque. Knorr assigns this cupid to the potter Germanus, who worked at La Graufesenque in the time of Vespasian (Knorr, *Rottweil*, pl. VI, fig. 1).

56. Shape 37. Mixed decoration. Man fighting lion. Man very similar to Déch. 634, La Graufesenque. For similar lion with tendril above, see Knorr, *Rottweil*, pl. II, fig. 1. Dog eating man, Déch. 967. La Graufesenque; also Knorr, *Rottweil*, pl. XIV, fig. 11. A running dog in a small panel under the man. Cruciform pattern to right and left, and narrow ornamental leaf band below. For a somewhat similar group, see fig. 20.

57. Shape 37. Band decoration; upper band in panels, (1) with oblique lines and arrowheads, (2) medallion enclosing dog, two corner tendrils, (3) the cruciform pattern. Narrow ornamental band above. The dog appears to be Déch. 918.

58. Shape 37. Band decoration; upper band, demi-medallions or festoons containing tendrils. Lower band, running animals and fan-shaped ornament (see figs. 18, 19, 33).

These might all occur in the last quarter of the first century. Only a few representative pieces of the early pottery from this site have been illustrated. For a full account see the Newstead report.

My thanks are due to Mr. Curle for his kindness in allowing me to take and reproduce these photographs.

The site is situated on the south side of the Tweed, about a mile to the west of Melrose.

CAMELON.

59. Shape 29. Very unusual form of decoration. Upper band, a continuous row of corded uprights. Lower band, buds or flowers with beaded stalks. This has the mark OF·RVFINI on inside. Knorr places this potter in the time of Vespasian (*Rottweil*, p. 65). A potter of La Graufesenque, Déch., vol. i, p. 84. Occurs at Neuss, Vechten, Wiesbaden, and Hofheim.

60. Shape 29. Upper band; scroll pattern with tendrils ending in the dart-shaped bud or leaf, the lower lobes filled with a scale pattern apparently composed of the ovolo from the egg-and-tongue pattern, see Newstead report, p. 215, fig. 8. The lower band is also entirely composed of these ovoli. For similar scroll to that on the upper band, see Knorr, *Rottweil*, xv, fig. 1.

61. Shape 37. Band decoration; upper band, foliage scroll and the lower lobes filled with an ornamental design composed of tendrils, etc. (see fig. 8). Lower band in panels, (1) lion over arrowhead pattern, probably very similar to fig. 20; (2) fighting gladiators and corner tendrils (see fig. 51).

62. Shape 37. Fragment showing decoration with running animal and fan-shaped ornament. A narrow ornamental band below. Animal may be Déch. 942, La Graufesenque (see figs. 3, 14, 18, 19, 39, 44, 58).

63, 64. Shape 37. Foliage scroll pattern with small birds and rosettes. Narrow ornamental band below. Rather unusual scroll, as the leaves are of different kinds.

65. Shape 37. Band decoration. Fragment showing running animal and fan-shaped ornament with narrow ornamental band below (see fig. 62).

66. Shape 37. Band decoration. Demi-medallions or festoons enclosing tendrils with dart-shaped leaf or bud. Narrow ornamental bands or wreaths above and below (see figs. 2, 12, 14, 46).

Illustrated in the report (fig. 12) is a piece of what appears to be shape 37, with an early foliage scroll pattern and the stamp FONINI. This may be a bad stamp of the potter FRONTINVS (see fig. 48). Several of the letters of his stamps are often ligatured and hard to decipher.

Of shape 29 there are fragments of about thirteen different bowls, and of early shape 37 fragments of at least eight.

The following potters' marks can be attributed to the first century:

On shape 29.

OF·FRONTINI. See fig. 48.

COSIRV. This stamp occurs at Newstead (*Report*, p. 234) in the early period, at Neuss on shape 27, and at Wroxeter on shape 18. See No. 7, p. 299.

On shape 18.

OFCALVI. See under Carlisle, p. 300.

OF·FIRMON. Occurs at Newstead (*Report*, p. 236) on shape 18 in the early period; also twice at Neuss.

COSIRV. See above.

The stamp OF·SVRII occurs three times on shape 27, and probably belongs to the early period, but nothing appears to be known of the potter.

The large proportion of shape 29 suggests a date that cannot be later than the early years of Domitian. Although some of the pieces might well be later than the recall of Agricola in A. D. 85, there is not sufficient evidence to indicate with any certainty the continuation of the early occupation after that date.

The first-century coins mentioned in the report are two of Vespasian, six of Domitian. There are also one of Trajan (date A. D. 105), one of Hadrian, three of Antoninus Pius, and one of Marcus Aurelius. There was a considerable Antonine occupation of the site.

The site lies about three-quarters of a mile north of the Antonine wall, and one and a half miles north-west of Falkirk.

The full report of the excavations will be found in *Proc. Soc. Ant. Scot.*, vol. xxxv, p. 329.

Inchtuthil.

67. Shape 29. Upper band with the oblique lines and arrowhead pattern, and part of running animal. See Knorr, *Rottweil*, pl. II, fig. 1, for a very similar piece of the time of Vespasian. Lower band, portion of a nude figure that may be a Venus holding a mirror (Déch. 203, La Graufesenque, and Lezoux).

68. Shape 29. Fragment of upper band with scroll pattern, very similar to those on bowls from Pompeii.

69. Shape 37. Fragment showing portion of foliage scroll pattern with small bird (see figs. 34, 40, 63).

70. Shape 37. Fragment showing arrowhead pattern and narrow ornamental leaf band below.

71. Fragment of base of either 29 or 37, showing narrow ornamental leaf band or wreath.

There are also six fragments of shape 27, and one flanged bowl (Newstead report, pl. XXXIX, no. 11).

One coin of Domitian is recorded as coming from this site.

Although few in number, the fragments of pottery are sufficient to prove an

occupation in the early years of Domitian. There is also a total absence of any later pottery.[1]

This site is on the left bank of the Tay, seven miles south-east of Dunkeld, and some fifteen by road from Perth in a northerly direction. For account of the excavations see *Proc. Soc. Ant. Scot.*, vol. xxxvi, p. 182.

Ardoch.

There are very few fragments of pottery in the Edinburgh Museum from this site; only one can be placed in the first century.

72. Shape 37. Band decoration; upper band, foliage scroll with arrowheads (see figs. 1, 18, 37, 49, 52, 61; also note the lower band on a bowl from Pompeii, Déch., vol. i, p. 96, fig. 64). Lower band, demi-medallions or festoons containing tendrils ending in dart-shaped buds or leaves (see fig. 66). Dividing the two bands a narrow ornamental band or wreath. Coins of Nero, Vespasian, Domitian, and Hadrian have been found on the site.

There are traces of earthworks immediately to the north of the fort. Some of these may possibly have belonged to a temporary camp of the time of Agricola's advance.

For the account of the excavations see *Proc. Soc. Ant. Scot.*, vol. xxxii, p. 399.

Castlecary.

This is a fort on the Antonine wall, and lies about six miles west of Falkirk. The excavations appear to have produced nothing earlier than what might be assigned to the Antonine period. Two pieces of pottery in the Edinburgh Museum are worthy of note. They were picked up on the site before the excavations were begun. One is illustrated here.

73. Shape 37. Metope decoration. Cruciform pattern and Minerva (Déch. 81, La Graufesenque); also a corner tendril. This may well be placed at the end of the first or beginning of the second century.

The other piece is a complete small cup which I have not met with on any of the other northern sites. It is either shape 6 or 25, Dragendorff, and is a first-century type.

The stamp L·TER·SECVN on what appears to be shape 27 has been found on the site. Dr. Macdonald assigns it to the last quarter of the first century (*The Roman Wall in Scotland*, p. 374).

[1] The coarse ware in the Edinburgh Museum consists of an early flat-rimmed mortarium, fragments of bowls of Corbridge types, nos. 4–7, and a jug neck of the Corbridge type, no. 1.

For the account of the excavations see *Proc. Soc. Ant. Scot.*, vol. xxxvii, p. 271.

My thanks are due to the authorities of the Edinburgh Museum for granting permission and facilities for taking the photographs of the pottery.

Cappuck.

This small fort is situated on the Roman road that passes Corbridge, Habitancum, Bremenium, and Pennymuir. It is about six miles to the north of the latter place, and three miles from Jedburgh.

It has been carefully excavated, but has only produced a small amount of pottery. There are, however, several pieces of shape 29, and some early shape 37. These, with some early coins, are sufficient to prove a first-century occupation. The excavators state that there can be little doubt that the site was occupied in the time of Agricola, and possibly for a short period after his recall.

For a detailed description of the excavations see *Proc. Soc. Ant. Scot.*, xlvi. 446.

Summary.

It is greatly to be regretted that the pottery from Carlisle was found in chance digging when laying foundations, and not in the course of scientific excavation, as then we might have been able to judge its date accurately. As it stands it is undoubtedly the earliest deposit with which we have to deal. The large proportion of shape 29 over 37 (fourteen of the former to four of the latter) certainly suggests a date somewhere in the seventies of the first century. Tacitus tells us that Agricola, in the year A.D. 79, explored woods and estuaries, and encompassed the territories of the enemy with forts and garrisons.[1] The Solway may have been one of these estuaries, and Carlisle one of the forts. It must not be forgotten, however, that Petillius Cerealis, who was governor of Britain from A.D. 71 to 74, carried on a campaign against the Brigantes, and, although he gained some victories over them, he does not appear to have been altogether successful.[2] We know really nothing of what Cerealis did, but it does not seem impossible that he penetrated as far as Carlisle. At any rate, the early pottery found there would not be inconsistent with some form of occupation at that date.

If Agricola was at Carlisle, there is no evidence of his having advanced northward from that point. His line appears to have been through Corbridge,

[1] Tacitus, *Agricola*, ch. 20.

[2] Tacitus, *Agricola*, ch. 17.

where a fair but not large amount of pottery that can be assigned to the early eighties has been found. It is possible that he left a detachment there to guard the ford or even to build a bridge across the Tyne.

It seems certain that he made the road that passes northwards through Habitancum, Bremenium, Chew Green, and Pennymuir. Although some or all of these sites probably owe their origin to him, yet we have no direct evidence on this point.

At Cappuck, however, we have undoubted evidence in the presence of shape 29, and still further north, at Newstead,[1] there is abundant pottery of the Agricolan period.

Tacitus tells us that in the year A.D. 81 Agricola held all the country south of the Clyde and Forth, established garrisons on that line, and drove the enemy as it were into another island.[2]

Dr. Macdonald, in his work on the Roman wall in Scotland, has dealt thoroughly with the question of these garrisons. Bar Hill, Castlecary, and Roughcastle[3] seem undoubtedly to have been three of these posts. They were small in size, and the great lack of small objects belonging to the early period shows that their first occupation was a short one. All three sites were occupied later under the Antonines.

It is not possible to say whether Camelon belongs to this line or not. The pottery from the site in the Edinburgh Museum includes at least twenty pieces that can be placed in the Agricolan period. The site was very probably occupied in the years A.D. 83 and 84, when Agricola extended his operations to the north of the Forth and Clyde, and it may have been one of the forts guarding his line of communications.

At Inchtuthil we have shape 29, some early 37, coarse pottery of the same period, and nothing at all that belongs to the second century. This is the most northerly point where remains of the Agricolan period have been found. Judging by the size, 55 acres, the camp must have been a legionary one. Probably near here the great battle of Mons Graupius was fought in the year A.D. 84. Ardoch has produced only two pieces of pottery that may be early, and it is hardly safe to place the site definitely in the Agricolan period.

In the year A.D. 85 Agricola was recalled by Domitian, and his son-in-law Tacitus appears to have taken no further interest in the province. With no historical evidence to help us we must turn again to the remains that have been found. At Newstead the occupation of the site may have continued until about the year A.D. 100; the evidence afforded by the pottery does not

[1] *Newstead*, p. 340 onwards.

[2] Tacitus, *Agricola*, ch. 23.

[3] Mr. James Curle tells me there is one piece of a late first-century bowl, shape 37, in the Edinburgh Museum from this site.

suggest a later date. The excavators of Cappuck were also inclined to think that that site was occupied after the recall of Agricola.[1]

That the late Domitian-Trajanic occupation at Corbridge was a considerable one, is shown by the amount of pottery of that period, and the large area over which it is distributed. Several rubbish pits, ditches, and stratified deposits have been found containing pottery of this date. Shape 29 is scarce, and when it does occur is generally of a coarse and degraded character, which suggests that this period might not have begun much before the year A.D. 90, or even later. This pottery as a whole presents a very unmixed character, and mostly comes from La Graufesenque. It hardly seems possible to place it later than about the year A.D. 110.

Some of the Trajanic types of pottery must undoubtedly have lasted into the time of Hadrian, and some of the definite Antonine types must have had a beginning in that reign. Now in no instance at Corbridge has there been a well-stratified deposit in which these two periods overlap. It may be chance, or it may mean that there was a break in the occupation. As has been already stated, there have been quite a number of stratified deposits which have produced definite pre-Hadrianic pottery. Also, wherever the definite second-century pottery, coinciding exactly with that belonging to the Antonine period at Newstead, has been found in any quantities in rubbish-pits, stratified layers, etc., the pre-Hadrianic pottery is almost entirely absent, only a few small fragments having been found, which may easily be débris from the earlier occupation. Now this almost entire change in the patterns on the Terra Sigillata, and in the types of the coarser wares, must have taken a considerable time, probably as much as twenty years. The fact that up to the present there has been no stratified deposit where the pottery of the two periods overlaps would seem very strongly to suggest a break in the occupation, and that it occurred somewhere between the years A.D. 100–110 and 130. If there was no break, the late-Trajan and early-Hadrian occupation must have been comparatively unimportant.

At Nether Denton there is pottery that probably dates from late Domitian until the end of the reign of Trajan, or possibly later. At South Shields there are a few fragments that might fall in the reigns of Domitian or Trajan, and at Chesters two or three pieces that, although not early, do not appear to be as late as Hadrian.

It is not easy with our present evidence to reconstruct what happened after the recall of Agricola. The second legion, *Adjutrix*, was withdrawn to the Danube, a proceeding that may have encouraged the Britons to new efforts. The forts in Scotland appear to have been abandoned by the beginning of the second century. Corbridge may also have succumbed shortly afterwards. The ninth legion

[1] *Proc. Soc. Ant. Scot.*, xlvi. 480.

disappeared entirely after about A.D. 110, and the situation was so bad that Hadrian in the third year of his reign came to Britain in person. How far south the trouble spread we do not know. There appears to have been an occupation at Nether Denton that may have lasted into the reign of Hadrian. If Corbridge did not fall, it is possible that these two sites, with perhaps Vindolana and South Shields, and possibly Chesters, may have formed in the reign of Trajan part of a line of forts across Britain, which survived until the coming of Hadrian.

It must, however, be borne in mind that the evidence afforded on this point by the existing remains is not by any means conclusive. It is only by future excavation that these problems can be definitely solved.

VII.—*Ancient Pigments and their Identification in Works of Art.* *By* A. P. Laurie, *Esq., M.A., D.Sc., Principal of the Heriot-Watt College, Edinburgh, and Professor of Chemistry to the Royal Academy of Arts.*

Read 28th November, 1912.

During the history of Art, from the earliest times to the present day, certain pigments have remained common to the artist's palette, and while some have dropped out of use, others have been added. Although a great deal of information on the subject has been collected from the examination of old records, and, in addition, by the occasional analysis of the actual pigments used, the whole subject seems to me to be deserving of a more exact inquiry than it has as yet received.

It is, in the first place, a matter of considerable interest to know what pigments were in actual use at various periods in the history of Art, and how far in practice the old receipts represented the artist's palette. Such information, if sufficiently complete, would be of great assistance in dating unquestionably many objects of art, and would in many cases be invaluable in detecting forgeries. Moreover, such an inquiry might result in the associating of certain pigments with certain places and schools of painting, and even with individual painters.

The inquiry, however, presents certain obvious difficulties, as it is seldom that the chemist is allowed sufficient freedom with an ancient picture or illuminated manuscript to enable him to apply ordinary methods of analysis. He is thus debarred from obtaining the definite information he requires if he is to make progress in this direction. I have therefore found it necessary to devise new methods of identification. By the careful preparation of old pigments, and their comparison with those on dated documents under the microscope, using both ordinary and polarized light, and by the devising of microscopic chemical tests, I have endeavoured to decide on the nature of the pigment without injury to the manuscript or picture.

I propose in this paper to begin by bringing together and tabulating the information at present available on the subject, and then to go on to describe the results of my examination of a large number of illuminated manuscripts at the British Museum, the Advocates' Library, Edinburgh, and the Edinburgh University Library.

This inquiry has been made into the period from the seventh to the beginning of the sixteenth century. Illuminated manuscripts are the best material that we have for this purpose for two reasons. In the first place, the pigments can be fairly easily identified, as they are in many cases laid on pure, and with comparatively little medium, thus lending themselves to microscopic examination; and in the second place, the date of so many of these manuscripts is accurately known, and in other cases approximately known, that they form reliable records of the pigments used.

It is necessary, in the first place, to start with a datum line of some kind from which the inquiry is to proceed, and for this purpose we cannot do better than take the list of pigments described by Pliny and Vitruvius, supplemented as their descriptions have been by the examination of the Pompeian and other classical frescoes, the analysis of pots of paint, and the examination of Egyptian pigments.

Nothing will be gained by discussing the more obscure descriptions given by Pliny, as a sufficient number of classical pigments have been definitely recognized for our present purpose. In classical times the following pigments were known: among blacks, charcoal, lamp and bone black; among whites, chalk, gypsum, and white lead; among yellows, yellow ochre, orpiment, and yellow vegetable pigments; among reds, red ochre, cinnabar, dragon's blood, red lead, and red from madder and kermes; among blues, azurite and the Egyptian blue, and indigo; among greens, malachite, verdigris, and terre verte; and for purple the Tyrian purple. In addition, other vegetable greens, blues, purples, and reds were known. It is unnecessary here to give the evidence for the above statements. The existence and use of these pigments may be taken as absolutely established. A very full discussion with the necessary references will be found in Ernst Berger's *Die Maltechnik des Altertums*, and a shorter account in my *Greek and Roman Methods of Painting*, with the necessary references.

It is evident, on examining this list, that a large number of the pigments are of no use for our present inquiry, as they remain common to the artist's palette to the present day, and we therefore need only consider those which have dropped out of use. Of these pigments, the most interesting is the Egyptian blue.

From prehistoric times the Egyptians had been accustomed to glaze certain objects with a blue or green glaze which owed its colour to the presence of copper. The real nature of these objects has recently been discovered by Burton. He has shown that they were, in the first instance, carved out of sandstone and then glazed, the silicious sandstone assisting the somewhat infusible glaze to flow. There can be no doubt that the discovery of the Egyptian blue pigment must have been associated with the use of this glaze, but the Egyptian blue is in reality quite a different substance. If portions of the blue glaze are pounded

up they have no value as a pigment, forming a grey powder, while the Egyptian blue itself is a very beautiful colour when reduced to moderately fine fragments. The real nature of this blue was determined by Fouqué.[1] After treatment with strong hydrochloric acid, a definite double silicate of copper and calcium is left, which is crystalline and doubly refracting.

A sample of blue frit taken from the coarse sagger or crucible in which it was melted (found in the waste-heaps and kilns at Memphis, and of about the first century B.C.), which is now in the Manchester Museum, consists of a mixture of this same blue double silicate with an excess of quartz. By washing and floating over the quartz can be largely removed, leaving the pure pigment. Whether this same pigment was used as the basis for making the glaze is still an open question, but it was merely necessary to wash it in the way described in order to use it as the source of the Egyptian blue.

This blue appears as early as the fourth Dynasty, and is identical with the blue found on Roman frescoes of the time of the Empire. Vitruvius states that the blue can be prepared by making up little balls of sand, soda, and copper filings, and heating in a furnace (Vit., vii. 12). Curiously enough, there is no mention here of the essential constituent, lime. The blue from an eleventh Dynasty coffin-lid, and another sample from a specimen of the frit itself in the University College Museum, and the Roman samples already referred to, all agreed exactly in their optical properties. If a painted surface be examined under the microscope by reflected light, the blue crystals are seen to be similar in appearance to azurite, but mixed with colourless particles of quartz. There is no trace of the receipt given by Vitruvius to be found in Theophilus or in later manuscripts, with one exception, which is evidently taken straight from Vitruvius (Merrifield, vol. ii, p. 804), nor is there anything corresponding to it to be identified in the pigments described by Cennino Cennini.

Another blue described by Pliny is evidently identical with azurite, the 'Armenian stone' being supposed to be an impure variety of the same mineral. Azurite is one of the most beautiful blues in the range of blues on the artist's palette, and no preparation is necessary beyond grinding down fine specimens of the mineral. It does not readily submit to fine grinding. When ground on the muller with oil or gum in the usual way it remains gritty, and under the microscope shows fairly large crystalline particles. If the grinding was forced to the fineness associated with modern pigments, it would lose much of its splendour. It is often mistaken for real ultramarine.

Mr. McLintock has examined for me the blues on seven different illuminated letters and paintings on vellum of the fifteenth century, and in every case found

[1] *Comptes rendus*, vol. cviii, p. 325.

azurite usually as the only blue, though in some cases associated with ultramarine in other parts of the painting. On several illuminated manuscripts in the possession of the University of Edinburgh, the blues, when present, were all azurite, with one exception. A large musical scroll on vellum which, judging by the decoration, dates from the latter part of the fifteenth century, I find to be painted with azurite alone as the blue.

Indigo is clearly described by Pliny, and two sources are given, namely, indigo from India, and the skimmings of the dyer's vat using woad. The probability therefore is, that it has always been known to artists, and therefore it is of little interest for our present inquiry.

Ultramarine from lapis lazuli does not seem to have been known in classical times, although the stone itself was well known. I have given the reason for coming to this conclusion in *Greek and Roman Methods of Painting* (p. 15).

Three greens mentioned by Pliny are terre verte, malachite, and verdigris. I have identified both malachite and verdigris in fifteenth-century illuminated manuscripts.

Among reds, Pliny mentions native cinnabar, but not artificial vermilion. A receipt for making artificial vermilion is given in a manuscript of the eighth century in the Cathedral Library at Lucca, and Cennino Cennini clearly describes the artificial variety. The pigment I have prepared from cinnabar is more of a brick red than vermilion, whether of European or Chinese origin, and is in some ways a truer and more beautiful red. The difference in tint, however, is not sufficient to enable me to identify which has been used, so that I have failed to get any reliable method of distinguishing them.

The lakes described by Pliny are dyed upon an opaque base like gypsum and therefore differ from our modern lakes, precipitated with alum, the receipts for which belong to the fourteenth century.[1] Professor Russell has identified an Egyptian madder lake, and has imitated it by boiling madder with gypsum and a little lime. I have also successfully prepared a beautiful pink pigment in this way, which is fairly rich and translucent in oil, though not to be compared for transparency with a lake on an alumina base.[2]

Among yellows, Pliny describes orpiment. This pigment does not seem to have been known in Egypt until it came into contact with Roman civilization. It has remained as the finest yellow pigment in the artist's palette until recent times, and an artificial preparation is still to be found in the artist's colour lists. Pliny also describes yellow oxides of lead. I have found yellow oxide of lead on a sixteenth-century illuminated manuscript, and I have also found it in the 'Scribe's palette' in the Museum at Edinburgh, probably about 400 B.C. This

[1] MS. Jehan le Begue, Mrs. Merrifield's translation.
[2] Russell, *Ancient Egyptian Pigments*, Royal Institution, 1893.

palette has six compartments, which still contain traces of charcoal black, two red ochres, gypsum, Egyptian blue, and yellow oxide of lead.

Red lead is described by Pliny, and was found on certain frescoes by Sir Humphry Davy.

The only remaining pigment of importance to be described is the Tyrian purple prepared from the Murex. The preparation of a pigment from this dye is described both by Pliny and Vitruvius.[1] According to Bede, the Irish monks knew the secret of preparing the dye from the Purpura shell-fish which is found on the Irish and English coasts. This beautiful purple is found on Byzantine, Irish, and Carlovingian manuscripts, and is quite unmistakable. Its presence in Carlovingian manuscripts is easily accounted for, as it was probably brought by Byzantine artists, but that the knowledge of how to prepare it existed in Ireland is certainly curious, and seems to point to a very close and direct connexion between the early Irish Church and the Greek Church, as Byzantium would necessarily be the home of the manufacture of classical pigments. I am not aware of any medieval receipt for the preparation of this purple, except one which is evidently taken direct from Vitruvius without any real understanding.

The Rosslyn Missal in the Advocates' Library, supposed to be of the thirteenth or fourteenth century, and the work of an Irish monk, is painted with vermilion, orpiment, the Tyrian purple, and badly washed ultramarine blue.

On Byzantine manuscripts a very rich and brilliant lake is found, resembling fine modern crimson lake, but even brighter and more intense. I am disposed to think this is probably a preparation of the Tyrian purple. We have first of all the colour of the purple when used as a stain on Byzantine, Carlovingian, and English manuscripts; we have the special tint of the purple, which is a little different from that of the stain, when used as a pigment on Irish manuscripts; and we have, thirdly, this crimson lake on Byzantine manuscripts, which in some cases approaches very near the Irish purple in tint. More than one receipt is given by classical writers for preparing a pigment from the Tyrian purple, so it is, at any rate, not impossible that this magnificent crimson lake on Byzantine manuscripts is derived from the same source as purple dye.

To sum up the result of the previous pages, the two pigments of the greatest interest which were known in classical times are the Egyptian blue and the Tyrian purple.

The next most important addition to the artist's palette is real ultramarine prepared from lapis lazuli. No receipt for its preparation is given by Theophilus, the earliest receipts occurring in the manuscript of Jehan le Begue.[2] Lapis lazuli is a complex mixture of mineral substances, containing ultramarine and a large

[1] Pliny, xxxv. 26; Vit., vii. 14.

[2] *Ancient Practice of Painting*, vol. i, p. 96.

number of colourless minerals, including sodalite and also iron pyrites appearing in the form of golden specks.

The receipt, which is repeated over and over again in fourteenth, fifteenth, and sixteenth century manuscripts, for the preparation of ultramarine from lapis lazuli consists essentially of grinding the lapis lazuli very fine (sometimes directions are given to heat it red hot and plunge it in cold water to assist this process), and then making it up into a pastille with resin and beeswax. This mass is then kneaded under water containing a little potash. Ultramarine prepared in this way from lapis lazuli contains, I find, a considerable quantity of the colourless mineral constituents as well as the blue. If the product is washed and floated, the ultramarine, being heavier, remains behind.

It is highly probable that the thirteenth century saw the introduction into the artist's palette of the lac lake prepared from stick lac. The colouring matter in this resin is due to the *Coccus lacca*, which lives on the twigs of trees of the species Butea, Ficus, and Croton. These insects become embedded in the resin which exudes from the tree, thus forming a red resinous mass, which is imported under the name of stick lac, and probably corresponds to the substance known as Indian lac in olden times. It was also customary in India to boil the resin with water probably containing a little alkali, and then evaporate the solution of dye to dryness with the probable introduction of a little alum. This solution, evaporated to dryness, is known as lac dye, and it was imported for dyeing into Spain and Provence as early as 1220.

The next pigment which we have to note is Naples yellow, which is described by Cennino Cennini, and stated by him to be a natural volcanic product. At a very slightly later date, however, we find it described in the MS. of the fifteenth century found by Mrs. Merrifield in the library of the RR. Canonici Regolari, Convent of S. Salvatore in Bologna, as an artificial compound of lead and antimony oxide. We may therefore assume that the artificial Naples yellow was known in the fifteenth century.

The next addition to the list of pigments is cochineal and the lakes prepared from it. So far the materials for making crimson lakes have been madder, kermes, brazil wood, ivy gum, and possibly Indian lac. The cochineal insect was introduced after the conquest of Mexico by Cortez in 1523, and lakes prepared from it are first mentioned by Matthioli in 1549. After this date kermes and cochineal are mentioned indifferently in the receipts for lake making.

One of the most remarkable facts in the history of painting is the absence of receipts for madder lakes, although there seem to be references to their purchase under the name of sinopia.[1] There is an obscure reference in the Le Begue MS., and after that no receipt occurs before the receipt in the Arte Vetraria (1612).

[1] Eastlake, vol. i, p. 116.

Yet the fine preservation of the lakes in many tempera pictures is difficult to explain if madder lakes were not known. The probable explanation is that many receipts occur for preparing lake by extracting the colouring matter from the clippings of dyed cloth obtained from the dyers, and although it is stated in the receipts that the cloth has been dyed with kermes, yet it is quite possible that cloth dyed with madder was used often for this purpose. Brazil wood yields a very fugitive lake, and lac lake and kermes lake are about as fugitive as crimson lake. The distinguishing of these lakes from each other is no easy matter when very minute quantities have to be dealt with.

The next important event is the introduction of smalt. Borghini describes a German blue, which he says is a glass, in 1581. This blue was known as saffre, and later as smalt. It is a blue glass which owes its colouring power to the presence of cobalt. The next event is the introduction of Prussian blue, first prepared by Diesbach, the date of his discovery being variously given from 1705 to 1720.

We now come to the end of the eighteenth and the beginning of the nineteenth century, and with the development of chemistry the rush of new pigments, zinc white, chrome yellow, artificial ultramarine, cadmium yellow, cobalt blue, veridian, cobalt green, cerulean blue, and so on. With a view to determining the dates when many of these new pigments were first put on the market, I have examined the old price lists of Messrs. Reeves, one of the oldest, if not the oldest firm of artists' colourmen in this country. Messrs. Winsor & Newton, Newman, and Robertson have also supplied me with the dates given in the accompanying table.

There still remains one pigment which has not been discussed in the above chronological statement, and that is verditer or bice. Both names occur in the old artists' colourmen's lists, but I have not been able to discover that there was any essential difference between blue verditer, green verditer, and bice. They are all apparently artificial carbonates of copper. The receipts for the preparation of artificial copper blues are very old, and are to be found in the Le Begue MS. One method was to attack silver with the vapour of vinegar or with grape skins at a mild heat. This, of course, can only have been successful if the silver contained a considerable percentage of copper alloy, though we are specially warned to use pure silver for the purpose. Another method was to precipitate verdigris with lime and sal-ammoniac.

A very complete description of the manufacture of these copper blues is given by Riffault under the name of blue ashes, lime blue, copper blue, and mountain blue, blue and green verditer. They all seem to be mixtures in varying proportions of copper carbonate and hydrate, and at one time a considerable manufacture was carried on in England. I have obtained blue and

green verditer from an old firm of artists' colourmen, and also from an old firm of drysalters, who found it in a disused drawer. They were very largely used in the eighteenth and early nineteenth centuries, but it is difficult to say when they were first introduced as articles of commerce, as the names give us no clue to the date at which azurite was replaced by these inferior artificial products. The names 'mountain blue' and 'blue ashes' occur very early, and it seems fair to assume that originally mountain blue was the Azzurro della Magna of Italy, or azurite.

According to Pacheco, Titian gave Michael Coxis some azurite to assist him in copying the Van Eyck in Ghent. It was found in Hungary, and was getting very dear after the conquest of Hungary by the Turks. This may be the beginning of the introduction of the artificial verditer. I find verditer is the blue used by Raeburn in one of his portraits.

In the appended tabulated statement I have brought together as far as possible the information contained in the foregoing pages.

It will be noticed that while many definite dates are already known which should prove of value in fixing the actual dates of pictures, there is still room for further and more definite information, which can only be obtained by the actual examination of well-authenticated pictures and manuscripts. The dates at which certain pigments disappear from the artist's palette are as important as the dates when others appear.

In addition to the pigments which have now been described, and for which there is documentary evidence, I have found in the course of my inquiries a very remarkable green. This green is to be found on manuscripts as early as the eighth century. It occurs very early on those of English origin, but is not confined to England, and seems to disappear from the palette of the illuminator about the end of the fourteenth century. In the fifteenth century we find in the 'oil' pictures painted by Van Eyck and his immediate followers a very beautiful transparent green which is again not found in later works of art. I have not had the opportunity of examining actual samples of the green used at the time of Van Eyck, but I have been able to examine one or two very minute portions of the transparent green to be found on the illuminated manuscripts, having obtained these tiny fragments from a German manuscript of the eleventh century.

In the first place, analysis proves that this green is due to some compound of copper; in the second place, it is quite non-crystalline, giving no appearance of crystals or reaction in polarized light; in the third place, it is insoluble in water, alcohol, chloroform, and acetic anhydride. One portion of the green from the German manuscript had some dark crystalline portions attached to it, from which the green seemed to have been made, and which were partially surrounded by and covered with the transparent green. These proved to be particles of

azurite. If verdigris dissolved in vinegar and mixed with gum or egg (a receipt which is constantly given) is painted on the manuscript, as it dries minute crystals are formed which are visible under the microscope, and I have been able to imitate this green only in one way, and that is by dissolving verdigris directly in pine balsam, such as Venice turpentine, Strasburg turpentine, or Canada balsam. The green, having been so dissolved, can be painted on either by diluting with a volatile medium such as spirits of turpentine, or by emulsifying with egg, or by drying, grinding into powder, and painting on with gum.

The earliest receipt for a green made in this way occurs in De Mayerne's MS. (Sloane 2052), where, however, it is not given for a green to be used by the painter. I should have been satisfied that this green had been prepared in the way I have described if it had not been for its insolubility in alcohol. The green prepared in Venice turpentine or Strasburg turpentine dissolves at once in alcohol; the green prepared with Canada balsam, itself a resin partially insoluble in alcohol, of course does not dissolve.

If my view as to the nature of this green is correct, I can only suppose that in this particular sample of the eleventh-century German manuscript some semi-fluid resin was used differing from Venice or Strasburg turpentine, which, like Canada balsam, does not dissolve in alcohol. It does not at all follow, however, that these substances were not used in other cases. I have given elsewhere my reasons for believing that this is the green used by Van Eyck and his immediate followers, a conclusion to which I had come before I had ever suspected its presence in illuminated manuscripts. If, however, I am right in assuming that it is the same green, we have the puzzling fact that it disappears from use on illuminated manuscripts, and is replaced at the opening of the fifteenth century by a very fine crystalline verdigris just at the time when it seems to appear in oil painting. It is evident, therefore, that the whole history of this transparent green requires further investigation, but in the meantime it can be mentioned here as quite characteristic of early manuscripts, and as differing entirely in appearance from malachite, either natural or artificial, on the one hand, and from verdigris on the other.

I have said nothing in this account about 'folium'. The obscure and very fugitive vegetable purples, reds, and greens probably included under this head, if used, have probably faded. The completeness of the colour schemes in most cases shows that such materials must have been very little used in practice.

With a view to filling in the details which are wanting in the information which has been given in the earlier table in this paper, I have examined a large number of illuminated manuscripts both at the Advocates' Library, Edinburgh, and at the British Museum, and I have summed up the results of this examination in the second table.

I may explain that I have not included in this table all the pigments that I have found. In some cases earth colours are used; for instance, the lion of St. Mark on the Lindisfarne MS. is painted with yellow ochre, and the use of earth colours occurs pretty freely in Byzantine manuscripts. I have not noted these, and in certain cases where I found a faded yellow lake, or indication of a dull faded vegetable pigment, I have not noted it in these columns, as it seemed of more interest to select the brilliant pigments which could be identified with greater certainty. In addition, there are some cases where a pigment occurs in the manuscript, and I have not been able to satisfy myself as to its nature. In that case it has simply been left out in the table, so that it must not be assumed that in each case every pigment found upon a manuscript has been entered in the table. The pigments entered are, in the first place, limited to the actual list given at the top of the page; and in the second place, in some cases where there has been a certain amount of doubt, only those pigments have been put in as to which there was certainty.

The first manuscripts I examined in the British Museum were of Byzantine origin, and dated from the sixth to the thirteenth century. I was examining them particularly with a view to finding out what blue had been used in Byzantium during these early centuries. I have already given a description of the Egyptian blue which was so universally used in classical times, and I was curious to see if its use had survived into medieval times, or whether the secret of its preparation had been lost. The views on this subject seem at present to be divided, some authorities stating that they have found Egyptian blue on medieval manuscripts, and I can only speak, therefore, of what I have myself seen.

The blue in the early manuscripts is poor in quality, and under the microscope consists of blue particles with which a large number of translucent white particles are mixed, appearing therefore a little like the Egyptian blue, which is always mixed with a certain amount of quartz. A careful examination of this blue reveals the fact that the particles of blue are really ultramarine, and do not correspond at all to the Egyptian copper silicate. Evidently, therefore, ultramarine was used from the seventh century onwards, but the art of extracting from the lapis a fine blue had not yet been discovered, and the actual blue used was probably the result of a crude washing process. This is the only blue which I found on the Byzantine manuscripts from the seventh to the fourteenth century. As far, therefore, as this evidence goes, the art of manufacturing the Egyptian blue must have disappeared before the seventh century, since it would have been a very much finer blue than the badly washed ultramarine then in use, and it can only be supposed that this ultramarine was used because the Egyptian blue was no longer available. The date of these manuscripts agrees so closely with that of the conquest of Egypt by the Mohammedans that it becomes of interest

to know whether the supplies of Egyptian blue were cut off at this date or earlier.

After examining these manuscripts, I inspected a series of other manuscripts both in the British Museum and in the Advocates' Library, in each case doing my best to identify all the pigments that I found used. In certain special cases it was very difficult to come to a definite conclusion; in many others there can be no doubt as to the results obtained, and when tabulated the whole history of pigments from the seventh to the end of the fifteenth century becomes very clear. The majority of manuscripts were English, but a sufficient number of manuscripts from other sources were also examined so as to get a fair impression of what was happening throughout Europe during the period.

If the table is examined, it will be noticed that I have written at the top of each country the names of the pigments found. These are arranged roughly in the order of the spectrum, beginning with vermilion, passing on to red lead, orpiment, etc.

Among the greens, the chief are malachite, natural or artificial, verdigris, and the transparent green containing copper, which I have already described.

Among blues, we find ultramarine and azurite, and at a later date ultramarine ash. We find also a series of lakes, and the Tyrian purple.

To begin with the first pigment on the list, vermilion. I did not find vermilion in all the English manuscripts that I happened to examine, of seventh, eighth, ninth, and tenth-century date, but from the eleventh century onwards it is universally used as a red, and is very fine in quality. It is impossible to say whether it is cinnabar or artificial vermilion, though I have found reason to think in one or two cases that real and artificial vermilion have both been used, thus giving two slightly different tints of red. In other cases the vermilion has been mixed with red lead, and the red lead has altered in colour.

The next pigment on my list is red lead. This pigment has been used from the earliest times, in spite of the fact that in a very large number of cases it can only be identified by its having become discoloured. It is certainly of interest to find an artificial pigment of this kind, which must have been the result of a process of manufacture, so widely and universally distributed throughout the centuries. It is not, I think, at all likely that it was manufactured locally in individual monasteries. The process would be difficult to carry out; and it is far more probable that it was a product obtained at the centres where lead was smelted, and then distributed as an article of commerce. If, however, it was manufactured locally, it was probably prepared by roasting white lead, prepared from metallic lead, so that either the red lead itself or metallic lead must have been widely distributed as an article of commerce, coming from such convenient sources of lead ore as might exist.

The next pigment on the list is orpiment. I have found orpiment of a dull quality on the early English and Irish manuscripts, and of a brighter quality on Italian manuscripts as early as the twelfth century, and also on Byzantine manuscripts.

With regard to the greens, malachite, the native carbonate of copper, is found on early English, and also on early continental manuscripts. It must have been a very common and universal green, and continues right through the centuries, and is still to be found on the lists of the artists' colourmen. Verdigris, the next green to be considered, although it is known in classical times, and a receipt for its preparation is given by Theophilus, does not seem to have been used until the fifteenth century. In one or two cases a green, which I could not be quite sure of, may have been badly prepared verdigris; but the brilliant green verdigris which we find from the beginning of the fifteenth century —the earliest date is 1419—does not appear before that time. It is not so blue a green as the verdigris prepared for artists to-day, and as verdigris consists of a series of sub-acetates of copper varying from green to blue, this is probably due to the conditions of preparation. We may, therefore, take the presence of the fine green verdigris as showing that a manuscript is not earlier than the beginning of the fifteenth century. As already stated, a fine transparent copper green is very frequently found on English manuscripts. The first specimen I found of it was on an eighth-century manuscript, and I have found it right through the centuries on English manuscripts, but rarely on continental ones. There are one or two cases in which the green seems to have been mixed with a substance like malachite.

The next pigment on my list is ultramarine. As I have stated earlier in this paper, it is not until the thirteenth and fourteenth centuries that we find receipts for its preparation. This is not due to the fact that ultramarine was not being used. It is found on Byzantine manuscripts of the seventh century, and on eighth-century English manuscripts, and in both cases is very badly prepared, containing large quantities of the more colourless parts of the mineral. The bad preparation of the ultramarine continues from the seventh to the tenth century. In the eleventh century the methods of preparation are improving, but it is still far from the ultramarine which we find later on. During the earlier part of the twelfth century it is still inferior in quality, though a richer effect has been apparently obtained by some process of burnishing the surface of the work when laying it on the manuscript. Towards the end of the thirteenth century the ultramarine becomes very good in quality in England. In the early thirteenth century it is fairly good in England, but it is not until 1283 that I found an English manuscript on which the ultramarine was of perfect quality. A French manuscript (1218) contained fairly good

ultramarine; the first-class ultramarine was not found until 1260 on French manuscripts.

On Italian manuscripts first-class ultramarine appears first at the end of the twelfth century.

While, therefore, we have a steady improvement in the preparation of ultramarine in the case of Italian, French, and English manuscripts, I have not seen a single case of a fine ultramarine upon Irish or Byzantine manuscripts; in fact, when we come to Byzantine manuscripts of the thirteenth and fourteenth centuries ultramarine is less well prepared than on any of the earlier manuscripts. To this statement there is, however, one exception, if we are to regard it as such, in the case of the Psalter of Queen Melissenda of Jerusalem (Egerton 1139), painted between 1131 and 1144. The earlier parts of this (fols. 1–12 *b*) have the characteristic crimson lake of Byzantine work, and associated with it a really fine ultramarine. On the later pages the ultramarine is not so fine, and corresponds more in quality with that which was common in Europe during the twelfth century; it is moreover associated with what seem to be European rather than Byzantine pigments. As far as I am aware, this is the earliest date at which really fine ultramarine is to be found, although it is closely followed by the fine ultramarine of the twelfth-century Italian manuscripts. It opens, therefore, the very interesting question as to the origin of the receipt for preparing ultramarine properly from lapis lazuli, and why, if it was of Eastern origin, as this would suggest, the other Byzantine manuscripts do not show this beautiful pigment.

It is interesting to note that the appearance in the books of receipts of the proper method of preparing ultramarine agrees almost exactly in date with the appearance of first-class ultramarine on illuminated manuscripts. Another point of interest is the fact that ultramarine, and therefore lapis lazuli, was evidently coming into Europe during all these centuries. The only source from which large quantities of good ultramarine can have been obtained was, as far as we know, the upper valley of the Oxus. It is evident, then, that whatever revolutions and disturbances may have been going on in Asia during these periods, such as the building up of the Mogul Empire, the trade routes cannot have been very much interfered with, since this constant supply of lapis was coming into Europe.

The next pigment on the list is azurite. As already explained, azurite is a blue copper mineral which is usually found near the surface of deposits of copper ore, and its appearance, therefore, as a pigment would be very largely accidental, depending upon the discovery of a good supply of the pigment, which might be rapidly exhausted. We consequently find that up to a certain date its appearance as a blue is very capricious. The earliest example of azurite that

I have found was on an English manuscript of 966, one bit of which is entirely painted over with azurite upon which gold letters have been placed. A careful examination of the surface, however, shows that this blue has been put on at a much later date than the actual laying of the gold letters, which have not only been laid on the vellum, but have also in some cases broken away to some extent before the surface has been painted over with the blue. I have therefore excluded this from my list of pigments in the table, as its date must be regarded as quite uncertain. Azurite then disappears, and does not recur on an English manuscript until the middle of the fourteenth century.

Among French manuscripts, I have found azurite on a specimen of the thirteenth century, and I have also found it on thirteenth-century Flemish manuscripts. The azurite used on the manuscripts of the thirteenth and the first half of the fourteenth centuries was very dark blue in colour, almost approaching ultramarine in its purplish shade.

In the latter half of the fifteenth century azurite seems to have been the blue principally used, and it either appears alone, or sometimes with ultramarine, in this way two beautiful tints of blue being obtained side by side. When we come to the Venetian manuscripts of the sixteenth century, we find there the same magnificently fine quality of azurite. This late fifteenth and sixteenth-century azurite is a much brighter blue, and is also much finer in quality and more finely ground than the azurite found on the thirteenth-century manuscripts. I think it is therefore evident that some new source of supply of this mineral must have been discovered somewhere about the middle of the fifteenth century. As I have already stated in the earlier part of the paper, we are told by Pacheco that the supplies of azurite are getting rare owing to the fact that its price went up when Hungary was conquered by the Turks. No doubt, therefore, the copper mines in this district were the source from which azurite was coming. In the same way magnificent deposits of azurite have been found in the copper mines opened in Mexico. I have not yet carried this minute examination of manuscripts beyond the end of the fifteenth century, so that I cannot say definitely when azurite finally disappears, but I have found it not only on late fifteenth-century manuscripts, but also on late fifteenth-century paintings, and have reason to believe that it was the famous blue used by Titian.

The next pigment on the list is ultramarine ash. With the appearance of ultramarine of first-class quality we begin to find ultramarine ash used for forming the delicate greys of buildings on the backgrounds of pictures and on illuminated manuscripts. The first example known to me of this use of ultramarine ash occurs on a manuscript of the end of the thirteenth century, but after that date it frequently appears, and can be readily recognized.

I find that my first record of the use of lakes comes from eleventh-century

manuscripts, but on these they are usually poor in quality, and suggest by their appearance that they are home-made. In the thirteenth century we begin to get very fine lakes—I should say a very fine lake, because it always seems to be the same whether in English or French manuscripts. This lake is exactly matched by lac lake, and I have no doubt must have been an article of commerce, as the preparation of two batches of lake of the same colour, and even the preparation of a fine lake at all when made in small quantities, is a matter of very great difficulty. The explanation, as I have already stated early in this paper, is probably to be found in the introduction in 1220 of the Indian lac dye, which was either used directly as a lake or with a certain amount of preparation, and was probably made and distributed from the centres where dyeing was carried on.

The Tyrian purple occurs on Byzantine manuscripts as a stain, and, as I have explained above, is probably also to be found as a crimson lake. I have also seen it on Irish manuscripts as late as the thirteenth century, but with one exception not on English manuscripts after the eighth century; and I have not seen it on French, after the ninth century, Italian, or Flemish manuscripts. Curiously enough, along with the Tyrian purple we also find the badly prepared ultramarine which had disappeared from use late in the tenth century in England. It certainly looks as if the Irish and Byzantine schools of painting had not benefited by the technical discoveries which had been made in the rest of Europe. At the same time, the painters of English, French, and Flemish manuscripts had lost a great deal by no longer having at their disposal the Tyrian purple, as up to the time of the discovery of really fine lakes they had nothing to compare with it, and even after that time there is no tint which is of exactly the same quality as that obtained from the Murex.

I have mentioned one exception, and this is a thirteenth-century Winchester manuscript which is in the possession of the Advocates' Library in Edinburgh. This manuscript, which certainly comes from Winchester, has on it the green which is associated with English work; but on an initial letter, which is distinctively Irish in its type and design, there is to be found a little bit of the Tyrian purple, and also a fine line of very badly prepared ultramarine blue. It becomes, therefore, a matter of interesting speculation as to whether the artist who painted this initial letter did not come from an Irish monastery, bringing with him the Tyrian purple and the inferior ultramarine, and using in addition to his palette the green lake which was peculiar to the English monasteries.

Before concluding, I wish to say something about a very interesting manuscript of the late fifteenth century which exists in the Advocates' Library. This manuscript is no. 18. 1. 7, and is the mirror of the Life of Christ translated from the Speculum Vitae Christi attributed to St. Bonaventura, first translated into the

vernacular in 1410. As the manuscript was prepared for the first Lord Grey de Ruthyn after his marriage, the date must be between 1465 and 1489. In the first place, it is interesting as having on it an example of two tints of azurite, one of these so purple in character that it might be taken for ultramarine. In the second place, it is of interest because the painting of the pictures of the life of Christ has been very largely done in beeswax. I was struck with the peculiar character of the green in one or two of the pictures, and on examining it under the microscope saw scattered through this green some curious reddish-brown spots. Having reason to believe, as I have stated earlier, that in the fifteenth century it was customary to dissolve verdigris in pine balsam, I wondered whether such a solution had been used here. I also noticed the curious surface of the painting, suggesting the use of wax, and was afterwards able to confirm the identity of the medium as being pure beeswax. I also found that on heating verdigris with beeswax a semi-solution was obtained, imitating exactly the green on this manuscript, and that if strongly heated little brownish-red spots of sub-oxide of copper were seen scattered through the green under the microscope. I have carried out many experiments with wax paintings, and while it is quite possible to paint with melted beeswax, yet these smooth even surfaces on parchment and vellum can only have been laid on by dissolving the beeswax in some volatile medium such as turpentine. The earliest references to turpentine and petroleum occur in mid-sixteenth-century manuscripts in receipts for varnishes. This manuscript, however, proves that some such volatile medium as turpentine was known, at any rate to some artists, between the years 1465 and 1489, and had been used in this case to dissolve the beeswax. This is the earliest date that I have been able to obtain for anything of the nature of oil of turpentine as an artist's medium, unless the transparent copper green was laid on the manuscripts with a diluent of this character.

This manuscript is also painted with a very rich lake which, after close examination, I have little hesitation in saying is madder lake, thus establishing the use of fine madder lake in the latter half of the fifteenth century.

There is another pigment, if it may be included under that name, about which I have said nothing, and that is gold. I have not examined a sufficient number of examples to come to a definite conclusion as to the way in which gold was used, but I have been struck by certain facts which may prove on further inquiry to be universally true.

The use of gold leaf and also of gold paint, which is evidently simply gold leaf ground down, occurs on the earliest manuscripts, the whole of the vellum on the earliest Byzantine manuscript I examined (Add. 5111) being entirely covered with gold paint. Raised gold leaf on gesso and bole first occurs on a German manuscript in the Edinburgh University Library which is supposed to be of the

eleventh century, but it was not in universal use until the end of the twelfth century on the other manuscripts which I have examined. In three English manuscripts of the eighth, tenth, and eleventh centuries I have found a very coarse gold paint which has the appearance of river-washed gold dust afterwards burnished, the result being to give a raised surface which at first suggests the use of gesso, but the pigment has in each case been laid directly on the vellum. This gives a very beautiful surface, and one cannot help wondering whether the raised gold leaf on gesso was not an attempt to reproduce the fine effect of the burnished gold dust which is to be found on these older manuscripts.

There is one other point which is worthy of notice. It is notorious that the pigments are apt to scale off the Byzantine manuscripts. Under the microscope a very marked difference is observed between the vellum used in Europe and that used in the Byzantine work. The vellum used in Byzantium is highly polished and very smooth, the English vellum is much rougher in fibre, and there are indications, in cases where the colour has scaled off, of the vellum having been deliberately roughened with a view to ensuring the binding of the pigments.

Another point of considerable interest which has been impressed upon me during this examination of the illuminated manuscripts is the coarseness with which it was customary to grind the pigments. The beautiful surface of colour which we find in these manuscripts is very largely due to this fact. The particles of pigments are at least six times the diameter of what would be customary in a modern artist's colour; and when we remember also how very largely crystalline or semi-crystalline pigments, such as azurite, verdigris, ultramarine, and so on, were used, it is easy to understand how these beautiful surfaces with broken lights were obtained. The examination, for instance, of the surface of azurite blue under the microscope at once reveals that beautiful mass of green and blue-green crystals, reflecting light in all directions, and thus of course enhancing the decorative effect.

Certain general conclusions can, I think, be drawn from the result of this inquiry, which, however, may be modified afterwards by extending observations to other manuscripts. In the first place, it is evident that from the earliest times there must have existed a manufacture and commerce of pigments. The presence of red lead alone would be sufficient to show this, as it would probably be manufactured at the lead mines where lead smelting was being carried on as a commercial operation. It would be difficult to make it in small quantities where furnaces were not available. The universal presence of vermilion is another case in point. Whether it was, to some extent, natural cinnabar, or whether it was prepared artificially by subliming in covered crucibles mercury and silver, it must have been distributed widely from certain centres, possibly the quicksilver mines

in Spain, and it must have been possible to obtain it of an excellent quality throughout Europe.

At a later date the uniformity of the lake used in the thirteenth-century manuscripts, and its close resemblance to lac lake, again suggest a centre of supply. It is very difficult to make a fine lake in small batches, and it would have been quite impossible that batch after batch of exactly the same tint was made in different monasteries.

Later on still, the replacement of ultramarine by azurite of a given quality again points to distribution from a central source. The most interesting example of all, however, is the prevalence of ultramarine as a pigment over such a long time, as no source for the lapis lazuli is known in which it would be obtained in sufficient quantity and of good enough quality except the mines on the upper tributaries of the Oxus, to which reference has already been made. There must have been, therefore, through all these centuries, a steady trade in lapis lazuli from Central Asia to Europe.

There are also, however, indications of certain local characteristics as well as of a widespread trade in certain pigments. The transparent copper green found principally on English manuscripts, for instance, is an example of this kind. I have also found fairly definite indications of Byzantine influence on the early manuscripts of the seventh and eighth centuries; the use of the badly prepared ultramarine which we find on the Byzantine manuscripts, and of the Tyrian purple, certainly points to this. The Byzantine influence must have ceased very early in England at any rate, as on the English tenth and eleventh-century manuscripts we do not find the Tyrian purple, which was replaced by very inferior lakes. I think there can be no doubt that if the knowledge of where to obtain, or how to prepare, this purple had still remained in the English monasteries the pigment would have appeared on their manuscripts. I have found only one exception to this, to which reference has already been made.

From and including the twelfth century onwards, we seem to see a great improvement in technical processes in Europe, in which I include Italy, France, and England—an improvement in technical processes which is not shown on Byzantine manuscripts, and to which the other exception seems to be Ireland, where, apparently, the Byzantine traditions were carried on and the greatly improved pigments now available do not seem to have come into use. It therefore certainly seems as if the Byzantine influence had been paramount through these earlier centuries, but that somewhere in the late twelfth and thirteenth centuries there was a revival in Europe of skill in carrying out the technical processes which resulted, among other things, in the enormous improvement in ultramarine, the production of beautiful lakes, and, finally, the magnificent palette at the command of the fifteenth-century illuminator.

It is not for me to say how far these impressions, based upon the examination of pigments alone, are confirmed or refuted by the examination of the artistic development through these ages, but in so far as can be judged by the limited number of manuscripts examined this must have been the course of events, and it agrees, at any rate very closely, with the date at which Italian art began to escape from the Byzantine tradition.

It is, I think, evident that although there are certain points as yet not quite decided, the result of this examination of manuscripts has been to make the information fairly exact as to the pigments in use from the seventh to the end of the fifteenth century. In order to carry the inquiry further, fortunately very valuable material is available owing to the existence of so many Venetian ducali.

In conclusion, I must thank Mr. McLintock, of the Royal Scottish Museum, for his invaluable assistance in the mineralogical examinations, and Mr. Herbert for his kindness in putting his special knowledge of illuminated manuscripts at my disposal. I am also indebted to the authorities of the Royal Scottish Museum, the Advocates' Library, the University of Edinburgh, and the British Museum, for the facilities they have given me for carrying out this inquiry.

June 23, 1913. Note.—Since writing this paper I have been able to apply definite chemical tests to the transparent copper green, which indicate that it is prepared by dissolving a copper compound in a resin, and then has been ground and laid on with gum or egg.

I have also had the opportunity of examining the Coram Rege Rolls from about 1500 to 1700, with the following results: a very fine mauve constantly occurs on these rolls, which is a mixture of azurite, white lead, and lake.

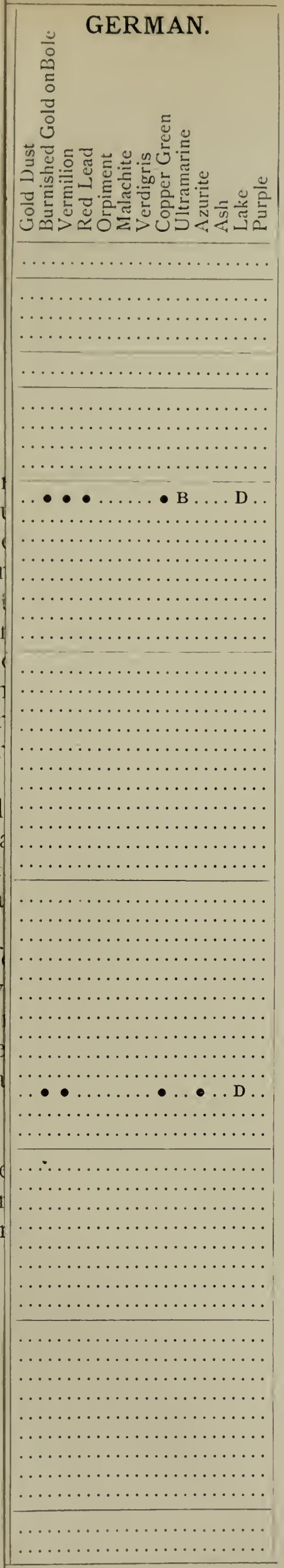
In addition, in the course of the paper I discuss the question as to when artificial blues and greens were first introduced in the history of Art. From the Coram Rege Roll 1450 of the year 1606, the blue is still azurite, but the green is the artificial green verditer in place of verdigris. The same is true of Roll 1499, dated 1621, but Roll 1537, dated 1635, has blue verditer appearing on it for the first time in place of azurite, and from this time onwards azurite is never again seen on the Rolls, so that it is pretty evident that green and blue verditer were brought in about the same time, viz. in the early part of the seventeenth century.

It is of interest to note that in an odd page from an Italian Choral Book which I have and which is undated, the combination of green verditer with azurite blue, which we find on Roll 1450, occurs.

These additional facts complete the history of pigments used for illuminating purposes up to the end of the seventeenth century.

	BLUE	RED	YELLOW
Pigments known in the time of Pliny.	Indigo. Egyptian Blue. Azurite.	Red Ochres. ,, Lead. Cinnabar. Dragon's Blood. Madder, Kermes } Lakes. Other vegetable reds.	Yellow Ochre. ,, Lead Oxide. Orpiment. And vegetable pigments.
Lucca MS., 9th century. 1220.		Artificial Vermilion Lac imported.	
First described in 13th and 14th-century MSS.	Real Ultramarine.	Lakes from Sapan wood.	
Cennino Cennini, early 15th century.			Naples Yellow.
Bolognese MS., 15th century.			Artificial Lead. Antimony Oxide. Later still, imitation of this.
Conquest of Mexico, 1523. First described by Matthioli, 1549.		Cochineal Lakes.	
First definitely described by Borghini, 1584.	Smalt.		
Discovered by Diesbach, 1704. 1778. 1781. 1797.	Prussian Blue.		Chrome Yellow.
1804. 1820–30. French Government Prize, 1828. 1835.	Cobalt blue. Artificial Ultramarine.		
1846 (1851 Exhibition).			Cadmium Yellow.
1861. 1862. 1870.	Cerulean Blue.		Aureoline, or Cobalt Yellow.
	Blue Ashes, Bice, Verditer in 18th century. These were artificial copper carbonates and hydrates. When they replaced native carbonates unknown. The receipts very old.	The first use of Lakes from Indian Lac doubtful, as a red from Ivy Gum had the same name.	

GREEN	WHITE	BLACK	PURPLE
Malachite. Verdigris. Terre Verte. Green vegetable pigments.	Chalk. Gypsum. White Lead.	Black Chalk. Charcoal. Lamp Black. Bone Black.	Tyrian Purple from the Murex. Prepared by Irish monks from Carpillus Purpura. Vegetable Purples.
Scheele's Green.	Zinc White.		
Emerald Green. Cobalt Green.			
Oxide of Chrome Greens.			


GERMAN.
Gold Dust
Burnished Gold on Bole
Vermilion
Red Lead
Orpiment
Malachite
Verdigris
Copper Green
Ultramarine
Azurite
Ash
Lake
Purple
B
D
D

EXPLANATION

In this table the pigments on the various manuscripts can be found by following down the column from the name of the pigment at the top. Every pigment which I have found is not mentioned, but those which are of real importance in the fixing of dates are given in every case. In most cases the pigment is merely marked with a dot, but in some cases by a letter: Ultramarine is marked according to quality, B for bad, F for fair, G for good, and G with a line beneath for very good.

The lakes are marked D where the lake is dull, L where the lake has no special description attached to it, LL where the lake matches Indian lac lake, and M where it has been identified as madder lake.

Under the Byzantine column the letter C refers to the beautiful crimson found on the Byzantine manuscripts, which I am disposed to think was prepared from the Murex. Where the purple occurs on Irish, French, or English manuscripts, it is marked simply with a dot.

The word 'Crimson', which occurs on some of the later manuscripts, means that lake has been glazed over vermilion. This becomes very common in the later fifteenth and sixteenth-century manuscripts.

CENTURY.	LIST OF MSS. USED IN THIS INQUIRY.	PLACE.	DATE.	ENGLISH.	FRENCH.	IRISH.	ITALIAN.	BYZANTINE.	FLEMISH.	GERMAN.
				Gold Dust / Burnished Gold on Bole / Vermilion / Red Lead / Orpiment / Malachite / Verdigris / Copper Green / Ultramarine / Azurite / Ash / Lake / Purple	Gold Dust / Burnished Gold on Bole / Vermilion / Red Lead / Orpiment / Malachite / Verdigris / Copper Green / Ultramarine / Azurite / Ash / Lake / Purple	Gold Dust / Burnished Gold on Bole / Vermilion / Red Lead / Orpiment / Malachite / Verdigris / Copper Green / Ultramarine / Azurite / Ash / Lake / Purple	Gold Dust / Burnished Gold on Bole / Vermilion / Red Lead / Orpiment / Malachite / Verdigris / Copper Green / Ultramarine / Azurite / Ash / Lake / Purple	Gold Dust / Burnished Gold on Bole / Vermilion / Red Lead / Orpiment / Malachite / Verdigris / Copper Green / Ultramarine / Azurite / Ash / Lake / Purple	Gold Dust / Burnished Gold on Bole / Vermilion / Red Lead / Orpiment / Malachite / Verdigris / Copper Green / Ultramarine / Azurite / Ash / Lake / Purple	Gold Dust / Burnished Gold onBole / Vermilion / Red Lead / Orpiment / Malachite / Verdigris / Copper Green / Ultramarine / Azurite / Ash / Lake / Purple
7.	Add. 5111, ff. 10, 11. Fragment of Gospel Book	Brit. Mus.	6th or 7th cent.					• B C		
8.	Nero D. IV. Lindisfarne Gospels	,,	700			• • • B •				
	Vesp. A. I. Canterbury Psalter	,,	,,	• • • • B D						
	1 E. VI. Canterbury Gospels	,,	Late 8th cent.	• • • • B •						
9.	Harley 2788. Codex Aureus	,,	800		• • B • C					
10.	Arundel 547. Gospels	,,	Early 10th cent.					• • • B • C		
	Add. 28815. Gospels, etc.	,,	..					• • B C		
	Vesp. A. VIII. King Edgar's Charter to Winchester	,,	966	• • B						
	Galba A. XVIII. Athelstane's Psalter	,,	Mid. 10th cent.	• • • • B						
11.	Laing 5. German Gospels	Ed. Un. Lib.	..							• • • • B D
	A. Ca. 44. Irish Psalter	,,	..			• • • • B •				
	Arundel 155. Canterbury Psalter	Brit. Mus.	1012-23	• • • • F D						
	,, 60. Winchester Psalter	,,	1060	• • • F • D						
	Add. 19352. Psalter	,,	1066					• • B C		
	Add. 11870. Metaphrastes	,,	11th-12th cent.					• F C		
	30337. Exultet Roll	,,	End of 11th cent.				• F			
	Add. 36928. Psalter	,,	,,					• • B C		
12.	Egerton 1139. Queen Melissenda's Psalter, fol. 1–12 b	,,	1131-44					• • • G C		
	,, ,, ,, ,, ,, fol. 202-11	,,	,,					• F L		
	Harley 1810. Gospels	,,	Mid. 12th cent.					• • • B C		
	Nero C. IV. Winchester Psalter	,,	1160	• • • F D						
	18. 2. 4. Rochester MS. Serm. de Temp.	Ad. Lib. Ed.	..	• • B •						
	6 C. VIII. Orosius, from Rivaulx Abbey	Brit. Mus.	Late 12th cent.	• • F						
	18859. Monte Cassino Psalter	,,	12th cent.				• • • G L			
	2 A. XXII. Westminster Psalter	,,	End of 12th cent	• • • • G D						
	9350. Italian Psalter	,,	,,				• • G̲ L			
	17742. Amiens Missal	,,	1218		• • • G L					
	1 D. X. English Psalter	,,	Before 1220	• • • G L						
13.	2 B. III. Flemish Psalter	,,	Mid. 13th cent.						• • D LL	
	Add. 17868. French Psalter	,,	About 1260		• G̲ • LL					
	3 D. VI. Petrus Comestor	,,	1283	• • • • G̲ LL						
	Burney 20. Gospels	,,	1285					• B LL		
	28162. Somme le Roy	,,	About 1300		• • • Dark • L					
	Egerton 1151. Horae	,,	13th cent.	• • G̲ L						
	'Ruskin Bible'	Ad. Lib. Ed.	,,	• • • G̲ LL						
	18. 2. 13a. Hyrdmanniston Breviary (Northern)	,,	,,	• B						
	18. 1. 2. 'St. Giles Bible'	,,	,,	• • • F L						
	10. 1. 4. Justinian's Institutes	,,	,,				• • D LL			
	Add. 17687. Life of Christ	Brit. Mus.	,,							• • • • D
	Add. 36929. Psalter	,,	,,			• • • B •				
	18. 5. 19. 'Rosslyn Missal'	Ad. Lib. Ed.	,,			• • B •				
14.	Arundel 83. East Anglian Psalter	Brit. Mus.	Early 14th cent	• • • • LL						
	Add. 11838. Gospels	,,	1326					• B D		
	Luttrell Psalter. East Anglian	,,	1340	• • • L						
	19 D. II. Poitiers Bible	,,	Before 1356		• • • LL					
	17 E. VII. Bible Historiale	,,	1357		• • • • LL					
	Add. 21965. Tailors' Guild, Perugia	,,	1368				• • • • G̲ L			
	18. 6. 5. Psalter of Eleanor de Bohun	Ad. Lib. Ed.	1382-99	• • • G LL						
	Add. 29704. Missal	Brit. Mus.	End of 14th cent.	• • • G̲ LL						
15.	Add. 22497. Dyers' and Quiltmakers' Guild, Perugia	,,	Before 1403				• D			
	Harley 2897. Burgundy Breviary	,,	,, 1419		• • • G̲ LL					
	Dom. A. XVII. Henry VI's Psalter	,,	1430		• • • G̲ •					
	Add. 35312. Horae	,,	Mid. 15th cent.		• • • G̲ L					
	Add. 14802. Florentine Missal	,,	1457				• • • • G̲ L			
	18. 1. 7. Speculum Vitae Christi (wax medium)	Ad. Lib. Ed.	1465-89	• • • • M						
	Add. 21463. Venetian Ducale	Brit. Mus.	1486				Crimson G̲			
	18. 7. 18. Horae	Ad. Lib. Ed.	15th cent.	• • L					• • • Cr'son	
	18. 8. 13. Horae	,,	,,		• • •					
16.	Egerton 754. Venetian Ducale	Brit. Mus.	1534				Crimson • •			
	,, 755. ,, ,,	,,	1538				Crimson • •			

VIII.—*Further Excavations at the Late-Celtic and Romano-British Cave-dwelling at Wookey Hole, Somerset.* *By* H. E. Balch, *Esq., F.S.A.*

Read 26th June, 1913.

Since last I had the honour to report upon the work of excavation, which for several years past has been carried on in the cavern at Wookey Hole, considerable progress has been made, the excavation being completed as far as the door of the cave. In doing this, a great quantity of floor débris has been minutely examined, and some very interesting finds have been made.

An outstanding feature of the deposit has been the rapid thickening towards the entrance. Whereas over the general floor of the dwelling the Roman débris averaged 6 in. and was very uniform, at a few feet from the present doorway it was a foot in thickness; and whereas the Celtic débris beneath was liable to considerable variation and was rarely 2 ft. 6 in. in thickness, at the point referred to it reached no less than 4 ft. over a considerable area.

Further, while in the earlier portion of the work no evidence was found of the fall of boulders from the roof, recently we have found one large rock which fell during the Late-Celtic occupation and two during the Roman period. The 'black band', as we called it, the half-inch of greasy soot which ran over everything further within the cave, disappeared as we got near the entrance, so that we may fairly assume that it arose from the smoke of the earlier fires whilst the occupants were living close to the present doorway. The larger accumulation of fire-ash and the absence of the soot, taken together with the finds made by us in these deeper beds, must be held to prove that for some considerable time the occupation was practically confined to the daylight portion of the dwelling. Moreover, the occurrence of pottery in these deeper levels, of a character distinct from that found in the other parts of the cave floor, confirms this in a remarkable way.

A peculiar feature of this pottery is, that most ornate designs elaborated from the C-curve were found at the very base of the deposit, being indeed covered by the ashes of the first fires to be lit in the cave, so far as we can tell. The fragments, in fact, were discoloured in every instance by the underlying gravel, which has

yielded nothing but two coprolites of *Hyaena spelaea*. The discovery of these fragments in such a situation makes it extremely probable that they were portions of vessels brought by the cave people when first they came to the cave. In at least one case the ware is different from anything made by the cave people themselves afterwards, both in form and decoration, and indeed it differs from any single specimen found in the lake-villages of the moorland near Glastonbury. Speaking generally, however, the striking resemblance which has been so marked hitherto has persisted, and there can be no doubt that there was a very close connexion between the two places. This is most marked in the weaving-combs, which persistently repeat patterns found at the Glastonbury lake-village; and we were fortunate in finding several of these combs quite perfect. It is of interest that though these earlier deposits must carry us back considerably in time, there is no dearth of iron quite at the bottom of the excavation; indeed, some of our best finds of this metal occur in those levels. The find of the denarius of Marcia (120 B.C.) in the upper levels, as reported last year, now assumes considerable importance, for the depth of pre-Roman débris reaches to 4 ft., and this coin, unaccompanied by Imperial coins, occurred at less than 3 in. from the top. It is incredible that the larger accumulation beneath it can have been made in less than a hundred years. I therefore suggest that from a hundred to a hundred and fifty years is a minimum for the deposit below the level of the coin of Marcia, and that therefore the occupation must have begun somewhere about 200 to 250 B.C. It may well be before that time, if the rate of accumulation of the débris was uniform.

There is no doubt whatever that the pottery, with designs formed of the C-curve interlocked, is of earlier date than the more abundant ware in which herring-bone and cross-hatching prevail, some designs which closely approach Bronze Age originals occurring 2 ft. higher in the débris. As to the origin of this pottery, M. Déchelette claims that it belongs to the same family as that of Armorica, the incised ware of which he looks upon as closely allied to the painted Gaulish vases of the rest of France. These date from 400 B.C. onwards, and it would therefore appear that, if the facts in connexion with the Wookey Hole excavation count for anything at all, the earlier incised ware with designs originating in C-curves cannot be much later. It is a peculiar fact that we have not found abundant specimens with decoration based on the S-curve, only one vessel occurring of that kind, and that not at so low a level as the pottery decorated with C-curves. This one vessel is, I believe, identical with one found at the Glastonbury lake-village in every detail but one. Whether this must be taken to mean that that particular vessel was brought from Glastonbury is an open question. The decoration of the base as in the Armorican vases, which was held

to be a strong link between the two places, had not occurred at Wookey Hole until this year, when one portion of a base was found with this characteristic. The absence of the taller pedestalled and cordoned forms of the south-eastern counties continues to the end to be most marked, and without question they can be said to be absent from the district, though when the cemeteries of the lake-villages and cave-dwelling are found they may possibly appear. The only cordoned vessels that we have are the dwarf-pedestalled, open-mouthed bowls, of which one instance, nearly perfect, occurred where it had been concealed in a fissure, covered by a slab of lias, which fell on it and crushed it at the moment of discovery. It contained the lower portion of the bill of a duck, fragments of which are still inside. In this vessel, and in a number of closely similar fragmentary specimens, the pedestal, illustrated as no. 4 of fig. 11 of last year's report, was first made inverted, and was reversed for completion, the line of joint in the side determining the fracture when the vessel was broken. One of these bowls had a perforation near the rim, apparently for suspension. One vessel, fully decorated, occurred with two perforations; the incisions are executed with a dentated bone, or cogged wheel, far more deeply than in any case before found by us. Probably among the mass of fragments collected the portions necessary to complete this will be found. In the case of one simple pot the decoration is novel, being very superficial, and consisting of large triangles filled with cross-hatching. Further, in this case there is a line of finger-prints beneath the lower limit of the decoration. Amongst the large number of decorated fragments here illustrated (fig. 1), no large portions of which have yet appeared, there are many that we should much like to see more complete; the missing pieces probably still lie in the outer porch of the cave, which is as yet untouched. They belong principally to that earlier period represented in the deep levels just within the cave door. From these it will be evident that there are numerous variations of the earliest designs; in no case were these found in the earlier excavations, further in the cave.

Amongst the twelve restorations here given (fig. 2) are the specimens (nos. 5 and 8) which it is suggested were brought to the cave by the first comers. There were two vessels almost precisely similar to no. 5, but in neither instance have we nearly all the fragments necessary for its reconstruction. The finger impressions are very clear, and carefully formed. The ware is black, free from grit, and polished. In no. 8 we see the open bowl which is represented by three portions formed of a ware quite distinct from anything else in the cave. It is a good ware, very hard, grey in colour, and well finished. The upper part, on every face of the rather square rim, is deeply lined, in a way foreign to all the other pottery. The alternating double C-curves are well defined, and filled in with



Fig. 1. Fragments of decorated pottery from Wookey Hole.

cross-hatching. There is a slight foot to the bowl. Altogether it is a very interesting specimen, especially as its like has not occurred in the lake-villages. Until this year the same could be said of no. 2, with its beautiful triple herring-bone finished with two rows of deeply impressed dots within double-incised lines. This year, however, one fragment almost precisely the same as this, but having only double herring-bone, has been found at Meare. Its appearance is so much like this that it might even have been the work of the same potter. No. 1 is closely allied to this vessel, the loops taking the place of the lines of dots. No. 3, which is from approximately the same level, is the most crude attempt at decoration among our finds. The incisions are deep, but there is no design, and many of the markings are most erratic. No. 4 bears a simple band of hatching, clear and effective, from the Late-Celtic deposit. No. 6 is peculiar, and from its position I am inclined to think that it is the C-curve much deteriorated. No. 7, a vessel of very brittle ware, having much calcite in its composition and washed over with finer clay, bears a pattern unique in the cave. The neck ornament is evidently the fern-leaf, and the rest strikes one as simple Bronze Age decoration, with the addition of the little line of triangles at the bottom. I fail to find this latter anywhere else. No. 9 is of hard but good ware, unpolished, with nothing but radiating lines by way of decoration. No. 10 is a small vessel of which the incised pattern consists of the fern-leaf and a series of pretty little triangles. No. 11 is, I believe, of early date and is closely allied to the earliest forms 5 and 8, its decoration being very superficial. No. 12 is a pygmy form of drinking-cup with pretty decoration recalling Bronze Age originals. The large central urn figured last year has now been found to have a notched edge and pattern varying in depth. There are also many specimens of the later (Romano-British) pottery from the upper levels, all restored from fragments.

Iron objects have been added to materially this year (pl. XXVI, fig. 1). Not only have we a pig of iron weighing some seven pounds, but a curious clamp (*b*), a good bill-hook resembling specimens from other Early Iron Age sites, with the wooden handle still contained in the socket; an adze in excellent condition and with traces of the wooden handle (*a*); a drawknife, (*c*) small but otherwise resembling the woodman's knife of to-day; a saw-handle which fits the iron saw previously found (pl. XXVI, fig. 4, *b*); a large socket of a weapon or tool, a broken dagger or knife, and various very crude attempts at making iron knives. These were all from the Celtic level, low down, with the exception of the pig of iron, which was at the top of the pre-Roman deposit. In the Roman deposit no good article of iron was found, but many large nails.

The group of weaving-combs (pl. XXVI, fig. 3) has now become one of the best in the country. They are all of early date except two. No. 2 is remarkable,

not only because of its perfect condition but because it is so curved in section. I submitted it to a lady at Clevedon who knows much about working on vertical looms, and she suggests that this may have been purposely shaped for the working of patterns. No. 1 is also remarkable, not only for its size but for the termination of the handle. No. 4, not so well preserved, is much more fully decorated. It has square panels with diagonal lines near the teeth, and has also the pointed termination, which is rare, with perforation for suspension. No. 3 is, so far as I can tell, unique. The great series from the lake-villages contain no such specimen. It is irregular in shape, decorated with lozenges, twice pierced (a very rare occurrence), and deeply incised with lines at the handle end. Moreover, its teeth, though perfect, are exceedingly short, being barely $\frac{1}{4}$ inch long. This and another beautiful specimen, no. 5, were at, or near, the base of the deposit, and in close proximity to the iron adze (pl. XXVI, fig. 1, *a*). This comb is by far the best found throughout the excavation, being a more perfect specimen of a type found at the Glastonbury lake-village. The deeply incised circles and lines, and the perfect teeth, mark it as distinct from any other in the group. Two undecorated and broken combs came from the Roman level.

A large number of remarkable hone-stones, etc., have been found, and the number increased as daylight was approached. They are usually of local stone from the Millstone Grit series of Ebbor, and commonly show the marks of wear. One interesting find consists of a flint-and-steel: a nodule of flint much worn in use and a similarly worn piece of iron pyrites. They are from the top of the pre-Roman level.

Some very interesting specimens of potters' tools have been found in the lower level, and are here illustrated (pl. XXVI, fig. 2, *a*, *b*). Portions of ribs occurred, in the side of which perfectly shaped curves have been cut. These were of varying depths to suit the different vessels under construction, some being very shallow, and others much deeper. A perfect polished moulding tool for the opposite side of the curves is also illustrated. These tools are probably rare, as they have not been identified at the lake-villages. I incline to the belief that boar tusks and animal ribs, in one case dentated at the top, also contributed to the shaping of the walls of certain pottery. All the objects in the group, including ordinary pottery pens, were found in close proximity to each other.

Many bone implements have also been found, some pierced and used, I think, for spinning; others twice perforated, at end and side, and roughly tapered at the other end; burnishing bones, polished to the highest possible degree, perhaps for cloth dressing; tapered bones, which are pierced and show pegs of both iron and bone (pl. XXVI, fig. 2, *d*, *e*); and a decorated spindle-whorl



Fig. 2. Decorated pottery (restored) from Wookey Hole.

(pl. XXVI, fig. 2, *c*), having a large number of incised dots and circles. All these and others have been found in the deeper beds in the cave. A curious little sphere of stone, from the Roman level, has radiations from a centre to the point of greatest diameter, but there is nothing to suggest its use.

The full series of pins and needles discovered in the cave contains a large number of new finds, some having decorated heads quite distinct from those previously discovered. These tend to concentrate in the upper Celtic and lower Roman levels, and it is not easy to discover marked differences in them. One or two specially fine specimens are included in this year's finds, but these will be better understood by examination than by description.

Among new finds of bronze are a fine pin with decorated head, some finger-rings and an ear-ring, a curious brooch-like ornament, possibly for the wrist, a little twisted spoon or ear-scoop from the older level, and a decorated bronze bar, possibly a brooch, from the Roman level. The curious ring of bronze (pl. XXVI, fig. 1, *d*) has eight ornamental rings wrapped on at intervals, and the spaces between are deeply milled on the outer edge only, recalling the decoration of certain early Italian brooches. It is very small and, if intended for the wrist, must have been made for a child. It is slightly flattened at one end and pointed at the other. A little ingot of tin with lead has been found, but has not yet been examined. Spindle-whorls in great variety have persistently occurred, together with a number of specimens which have not been pierced. These show all the stages of manufacture, from the rough stone to the finely finished specimen. The oldest seem to be those of antler and stone, and the later more finely turned.

Numerous antlers of roe and red deer (fragmentary) have been found, and in the articles made from these are many of great interest. First is a complete pick, much worn. It is much like various finds of greater age which have been made from time to time, and comes from the middle of the Celtic level in the cave. Then occurs the hanger (pl. XXVI, fig. 4, *a*) pierced for suspension and sawn off flat to hang evenly against the wall, perhaps for the suspension of game. It is from the deeper level, from which comes also an implement, the purpose of which is most uncertain. It was formed from the antler of a roe deer, shaped by the removal of a tine, polished, bevelled at the base from two sides and then sawn into a deep notch at right angles with the bevels. Awl-handles and portions having iron rivets embedded have also occurred. A considerable number of worked-up tines, some doubtless bridle-pieces, but others of doubtful use, have occurred and are not confined to either level. Certain specimens are highly finished, polished, decorated with lines, and doubly pierced. Perhaps one of the most interesting is a complete specimen,



Fig. 1. Adze (*a*), clamp (*b*), and draw-knife (*c*) of iron, and bronze wrist-ornament (*d*). $\frac{1}{2}$



Fig. 2. Pottery-moulding tools (*a*, *b*), decorated whorl (*c*), and weaving implements (*d*, *e*) from the Late-Celtic level. $\frac{1}{2}$

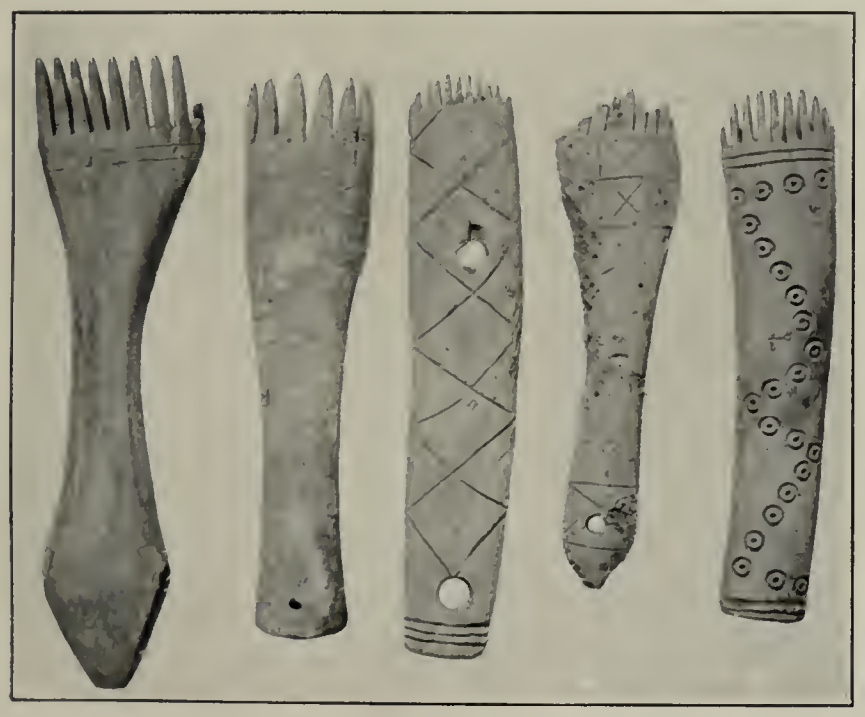


Fig. 3. Late-Celtic weaving combs. $\frac{1}{3}$



Fig. 4. Hook for suspension (*a*), and antler-handled saw (*b*). $\frac{1}{3}$

IRON, BRONZE, AND BONE OBJECTS FROM WOOKEY HOLE

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much worn, pierced twice, and with both ends decorated with crossed lines and ring-and-dot pattern. It appears to be identical with a broken specimen found by Warre in Worlebury camp in 1852, and thought to be part of the mouth-piece of a musical instrument. Our specimen could have been nothing of the kind.

In Kimmeridge shale several new finds have been made. There are portions of three wristlets and an armlet, two spindle-whorls, and a larger portion of what must have been a marvel of turning, a large, deep bowl, cut into a rebate at the upper edge to receive a similarly made cover, and with the finest cordons raised at intervals, singly or in pairs.

Some further specimens of Roman glass have been found, including a rolled edge of some beautiful vessel, several fragments of possible drinking glasses, etc. The only articles of wood that escaped destruction had been embedded in goat's dung, which in some way preserved them. Some portions of footwear are of unknown age, having been found in a deep hollow amongst boulders.

The bones of the animals used for food have of course persisted throughout the excavation. I have throughout been faced with the same difficulty in accounting for the presence of human bones under precisely the same conditions as the animal bones with which they are mingled. To this there must now be a reservation. The deeper level from which came the beautiful decorated pottery showed the food bones, as did all the rest of the cave-floor, but it did not contain a human bone. Half-way up the Celtic deposit they began, and continued well into the Romano-British accumulation. The distribution is so strange that I have thought it worth while to exhibit a few specimens of these well-preserved (though shattered) human bones. Smashed tibiae, femora, jaws in pieces, portions of skulls, detached though perfect jaws, were embedded in the undisturbed wood-ashes of the fires from wall to wall of the cave, lying side by side with the bones of deer, goat, pig, and cow, all of which have been broken in a similar way. I thought that the lake-villages of the moorland near by were without these human remains in the dwellings, but Mr. Gray informs me this is not the case, such fragmentary human remains having been found inside the dwellings at the Glastonbury lake-village.

It should be added that the whole of the work, manual and otherwise, has been done at Wookey Hole by volunteers, and that the funds of no Society have been called on to bear a single penny of the costs of this excavation. It may be of interest to state that when the great coal strike caused the shutting down of the neighbouring paper mills, a number of the paper-makers volunteered to give their services without reward, and the work was brought to a close

much more quickly in consequence. There now remains the open archway without the cave door, and when this is undertaken, I have no doubt that some further light will be thrown upon these prehistoric cave-dwellers of the Early Iron Age.

It is a remarkable fact that the cavern has so far failed to produce relics definitely of Neolithic or Bronze age. A small exhibit represents the large number of relics of this age which we are finding little more than a stone's-throw from the cave. This includes a group of arrow-heads and a flat bronze celt of presumably early form, found but yesterday at Ebbor, a short distance from Wookey Hole.

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Photo: Richard Keene, Derby

ELIZABETH, COUNTESS OF SHREWSBURY

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IX.—*Bess of Hardwick's Buildings and Building Accounts.* *By* Basil Stallybrass, *Esq., Licentiate R.I.B.A.*

Read 12th June, 1913.

Bess of Hardwick's building accounts are stored in the muniment room at Hardwick: in regard to Chatsworth they are fragmentary; in regard to Hardwick they are almost complete; in regard to other works they survive but in scattered references. Of the buildings themselves Chatsworth has almost entirely disappeared, the earlier building at Hardwick is partially demolished, the newer building remains almost as Bess left it; while her other minor works remain only in portions. Thus the buildings and the accounts are commentaries on each other, and fate has decreed that the measure of their survival should be equal.

But the accounts have hitherto been almost neglected. Beside the fact that they have great intrinsic interest, a study of them would have prevented many misstatements about the buildings and their builder. The earlier topographies indeed, such as Nutt's *Magna Britannia* of 1720 and Vernon and Hood's *Beauties of England and Wales* (1803), ascribe the buildings correctly; but the *Magna Britannia* of 1817 appears uncertain of the authorship of the older hall at Hardwick, and Robinson in his *Vitruvius Britannicus* of 1833, mainly followed by later writers, commits three positive errors when he asserts that the Old Hall was 'inherited by Elizabeth in a perfect state, but after her marriage with William Cavendish ... it was partially dilapidated by the very large removal of materials for the continuation of' the first Chatsworth. The Old Hall was not inherited, nor was it perfect—being non-existent—and it was not gutted till the first Duke of Devonshire built the later Chatsworth.

Before, however, diving into these building accounts, it will be desirable to call to mind some facts about the builder, and to take note of the sources of her wealth.

Bess of Hardwick (pl. XXVII) was born in 1520, third daughter of John Hardwick of Hardwick, who died in 1527. A country squire of no great pretensions, he remains only a name. His house at Hardwick, where Bess was born, had probably suffered no change when, in an inventory of his son's, it is described as 'the house, the barn yardes and dovecote yarde' and reckoned in the rent-roll

at 40*s.* At fourteen years' purchase—the then ratio for the sale of land—this would mean a capital value of £28—say £420 in modern money—evidently not a palatial building. A stone chimney stack,[1] which, with some moulded oak balusters in the staircase,[2] alone appears to have survived, points to the house having been a one-story building, while an account in his daughter's time for a carpenter demolishing a portion suggests that it was half-timbered. At that time there were probably more timber than stone houses in Derbyshire,[3] despite it being a stone county. With its barn and dovecot yard it was no doubt a typical farm-house of the time. If we may assume that John Hardwick's rent-roll was of the same value as his son's, we may take the £352 8*s.* 4*d.* mentioned in the inventory and capitalize it at £5,000, say £75,000 of our money.

Perhaps owing to the death of her father Bess went early into the world. Somewhere she received a sound education in the three R's—she read, if it was only Homilies; her writing is well formed, though the spelling is much quainter than her clerk's; while the Accounts are a standing witness to her arithmetic. But the 'Viols', the 'Singing Books', the 'Mappes', and the 'Histories' that were bought for her grandchildren were probably not bought for her. At the age of twelve, while attending Lady Zouche in London, she nursed the sick bed and won the love of Master Robert Barlow, aged fourteen. The Barlows were near neighbours in Derbyshire, a match was approved and the two were betrothed, so that on his death shortly afterwards she came into his property. Later on we find her working lead-mines at Barlow, presumedly inherited from this first husband.

She was twenty-seven when she was married to her second husband, Sir William Cavendish. Sir William possessed family property in Suffolk, which he eventually sold. In 1539 he had been appointed one of the auditors of the Court of Augmentation, and, as one of the Commissioners for the dissolution of the monasteries, he was in a position to acquire many good bargains in land, and also in works of art, some of which still hang on the walls of Hardwick. His services were rewarded by a grant of the manors of Northaw, Cuffley, and Childewick in Hertfordshire. His account book for 1552–3 contains a page headed 'Moneys received at London', received, i.e., by the steward. They are mostly described as 'from my lady', and apparently represent the current income. Between November 10, 1552, and June 24, 1553, the total is £166 11*s.* 9½*d.*, which at the same rate would give an annual income of £261 (= about £3,900). Probably money coming directly into Sir William's hands is not included, and in any case the value of task services is quite unrepresented. In 1587–8 Lady

[1] Centre of south front (fig. 1 and pl. xxxii). [2] Seen on the right hand of pl. xxviii, fig. 1.
[3] Cf. Harrison's *Description of England*, Bk. II, chap. 10.



Photo: Richard Keene, Derby

Fig. 1. Lesser stairs, Hardwick Old Hall (before repair)



Photo: Richard Keene, Derby

Fig. 2. Kitchen, Hardwick Old Hall

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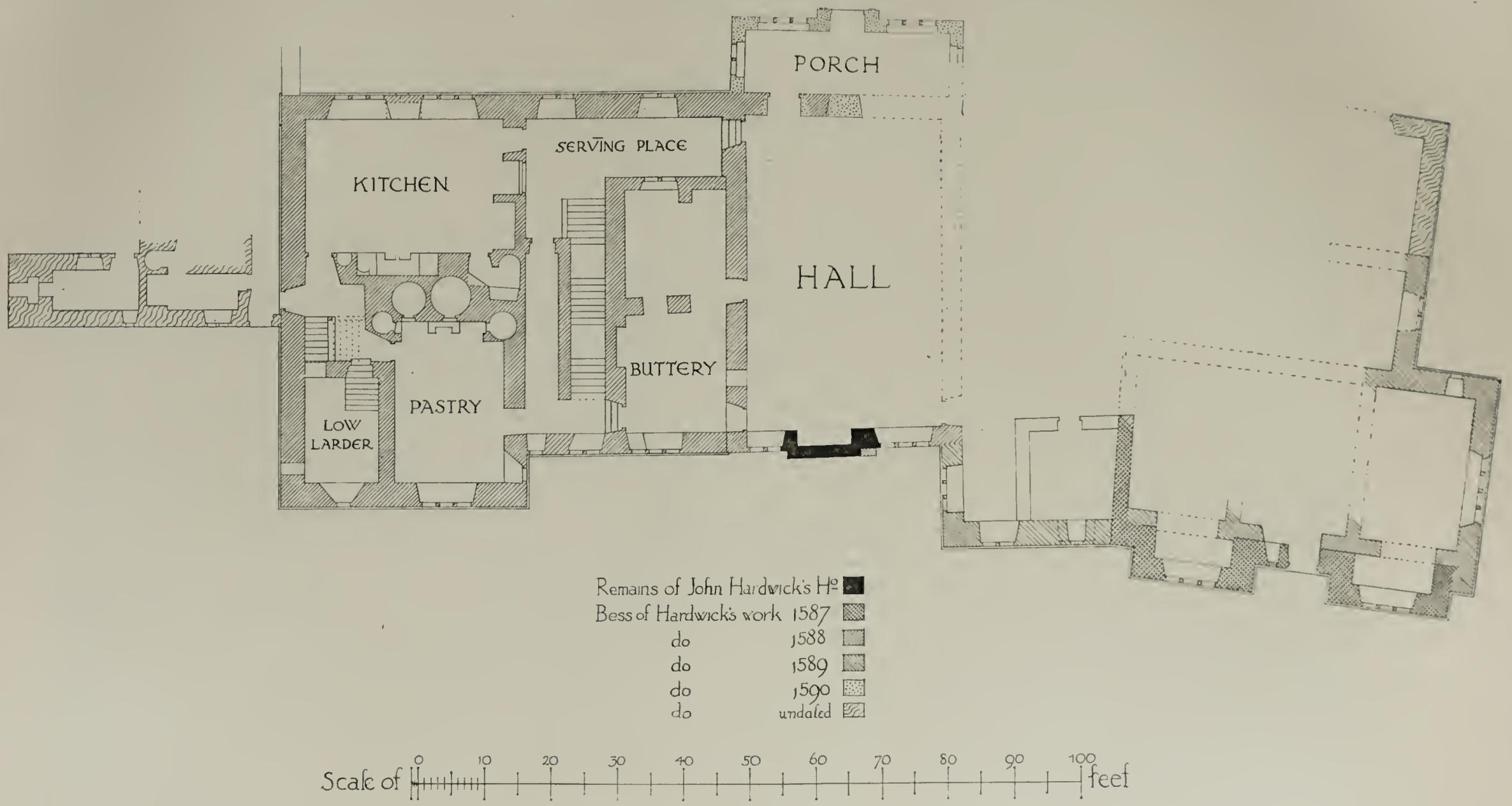


Fig. 1. Hardwick Old Hall ground floor plan.

Cavendish's household expenditure in London averages £3 8*s.* 3*d.* per week, or £177 per annum (= £2,600).

In 1548 the first child, Frances, was born; the next one, Temperance—probably named after the Princess Elizabeth—died young; then followed three sons, Henry, William, and Charles; and two daughters, Elizabeth, and Mary, the youngest surviving child.

It was in 1552, in the middle of these family cares, that Bess began her first building. Her youngest sister, Alice, had married Francis Leche, then owner of Chatsworth. In 1550 they sold the property to the Agards, who in turn sold it to the Cavendishes. The accounts of these days are divided into two parts, the first portion audited by Sir William, containing the general expenses; the second, audited by his wife, confined to the household bills. It is not within our present purpose to refer to the latter with their interesting list of visitors, carefully noted at each meal; but of Sir William's accounts there are a few items that refer to buildings, and these are of great interest.

27 Nov., 5 Ed. VI (1551). Itm paid for all maner of yron work that pertayneth to ii portalls sente Chattesworthe by old Alsope (carrier) iiii^{s} vi^{d}

An unusual thing that ironwork, apparently of no exceptional quality, should be bought in London.

Dec. 6, 1551. Itm paid to a carpenter for makīg a particon in my m^{rs} Colehouse at London, for quartr^{s} lath naile & workmanshipp iiii^{s} viii^{d}

Dec. 17, 1551. Itm paid goodm^{n} bisseter carpentr for hymself and his man for working at Chattesworth by the space of lxxii dayes at viii the day for hymself and v^{d} the day for hys man, as appereth by a bill signed wth my M^{rs} hand lxxviii^{s}

Itm paid to Robert brounne Joyner by vertue of a bill signed wth my M^{rs} hand xvi^{s} x^{d}

These must refer to alterations in the Leche's old house.

Dec. 24, 1551. Item geven Roger Worde my M^{rs} mason for drawing my M^{rs} platt xx^{s}

Dec. 9 [probably Jan. 9], 1551–2. Itm paid for mending the lok of the soller dore & the lok of the larder house dore and for ii keyes for the said ii loks ix^{d}

Feb. 5, 1551–2. Itm paid to ii woemen for to carye wat^{r} forthe off the sellor & for skuring [scouring] iii^{d}

Itm paid to a man for mending the sellor iiii^{d}

The item of December 24 must be the plan for the new Chatsworth. Just as the designer of a royal building is called 'the King's Mason', so Roger Worde is described as 'my master's mason'. As Sir William had done no extensive building before, Worde may have been one of the men that he took with him when he was dissolving the monasteries. I can find no other mention of the name unless the Roger Ward given by Beresford Chancellor as one of the master masons at Burghley be the same man.



Photo: J. Gretton, Bakewell

NEEDLEWORK VIEW OF OLD CHATSWORTH

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The plan of this second Chatsworth can be determined by a comparison of the two views which survive. The needlework view (pl. XXIX) is the older and probably more accurate in detail, though out of proportion; the painting (pl. XXX), later in date and badly cracked, is valuable because, being taken from above, there is a good view of the roofs, from which the plan can be deduced. It also shows the surroundings—the base court, the north orchard and stable buildings, and the pond on the south front. The details are probably not to be trusted; the pediments shown over the windows, for instance, are absent in the needlework view except in the case of the two larger windows, and were probably inserted to meet the prevailing taste.

In its general disposition the house follows the fashion of the time, of which Hampton Court is the most noticeable example. The house is grouped round a court, the entrance through an archway between turrets in the centre of one side, the hall, buttery, and kitchen running along the opposite side—their windows being visible through the archway in the needlework view. In detail the house is somewhat original. There are four turrets projecting from each of the two principal sides, the four angle turrets square and apparently flush with the ends, while those that flank the archway (and the corresponding pair on the opposite side) are V-shaped. The opposite pair may have been treated as oriels to the hall, the only feature with which I can find this V-shaped plan associated at this date. There are rows of circular medallions in each story over the gateway, and two large transomed windows running through the two upper floors on either side of the building suggest that there were two galleries. The conduit or fountain is seen through the archway in the middle of the court, and somewhere or other there was a clock, but it is not visible in either of the views.

The accounts for the following years have not survived, but there is an interesting letter from Bess to her steward, Francis Whitfield, at Chatsworth:[1] 'Francis I have spoken w^t^ your master for the dylles or bordes that you wrete me of; and he ys contente that you shall take some for your nesecyte by the apountmente of Neusante so that you take seche as wyll do hyme no sarvese aboute hys byldynge at Chattysworthe. I pray you loke well to all things at Chattysworthe tyll my aunts comynge whomewhyche I hope shalbe shortely and in themeane tyme cause Broushawe to loke to the smethes and all other thynges at Penterydge [where the timber came from]. Lete the brewar make beer for me fourthewith for my owne drynkyng and your myster; and se that I have good store of yt for yf I lacke either good bare or good charcole or wode I wyll blame nobody so meche as I wyll do you. Cause the flore in my bedechamber to be made even ether w^t^ plaster claye or lyme: and all the wyndowes were the glasse ys broken to be

[1] Hunter's *Hallamshire*, p. 78.

mended; and all the chambers to be made as close and warme as you cane.

To my sarvante Francys Wytfelde
give thys at Chattysworthe.

Your mystrys
Elizabethe Cavendysh.'

These repairs are, of course, to the old house. The new house is being built, Neusante being apparently the master carpenter.

In 1557 Lady Cavendish was recalled to London by the illness of her husband which ended in his death. After a short widowhood she found a third husband in Sir William St. Loe, Grand Butler of England and Head Captain of the Guard. He settled upon her his property at Tormarton, in Gloucestershire, and thus got into trouble with his family. The quarrel with his brother Edward came before the courts, and there survives a 'Replication to his brother's charges' which shows that the latter had been accusing Lady St. Loe of an attempt to poison him—an absurd calumny made without a shred of evidence.

It was the early years of Queen Elizabeth's reign, and the St. Loes frequented the court. No account books of these years survive, but there is a letter from Bess to her servant, James Crompe, showing that Chatsworth was still in progress:

Crompe, I do undeerstande by your letere that Wortliy sayth he will departe at our Ladeday next . . . I wyll that you shall have hym bunden in an oblygacyon to avoyde at the same day, for sure I wyll troste no mor to his promes. And were he doth tell you that he ys any peny behind for work done to M^r^ Cavendysshe or me, he doth lye like a false knave. For I am moste sure he did never make anythynge for me but ii vaynes to stande upon the huse. I do very wel lyke your sendeynge sawyers to Pentrege and Medoplecke, for that will furder my workes: and so I pray you yn any other thyngs that will be a helpe to my byldeynge let it be don. And for Tomas Mason [probably Thomas Roberts] yf you can heyre were he ys I would very gladely he were at Chattesworth. I wyl let you know by my next leters what worke Thomas Mason shall begin one furste when he doth come. And as for the other mason which Sur James towld you of, yf he wyll not aplye his worke, you know he ys no mete man for me; and the masonys work wych I have to do ys not muche, and Tomas Mason will very well overse that worke . . . E. Seyntlo.[1]

St. Loe appears to have died about 1565. Another short widowhood followed for his lady, till in 1568 she made her fourth and most brilliant match by securing George Talbot, Earl of Shrewsbury, Knight of the Garter, Lord Lieutenant of York, Notts., and Derby, and Lord High Steward. He was a widower with seven children, but Bess turned this to account by arranging matches between her son Henry and his daughter Grace, and between his son Gilbert and her

[1] Hunter's *Hallamshire*, p. 79.



Photo: J. Gretton, Bakewell

OIL PAINTING OF OLD CHATSWORTH

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daughter Mary. The earl had six houses—Sheffield Castle, Sheffield Manor,[1] Worksop Manor, Buxton Hall, Rufford Abbey, and South Wingfield Manor; and as Bess of Hardwick's property, with the yet incomplete house of Chatsworth, lay in the middle, the marriage was a politic one, though on his side at least it appears to have been a love-match as well. It has been stated that in these numerous houses lay the reason why Queen Elizabeth now appointed the Earl as custodian of Queen Mary; but she had not that consideration for her prisoner, and so far from its influencing her selection she exhibited strong opposition when any change of residence was proposed, and it was only after repeated complaints from the captive Queen, and after the Earl had demonstrated the safety of the new quarters, that Queen Elizabeth would acquiesce. The reasons rather lay in the character of the Earl, and in his power as Lord Lieutenant to raise soldiers, to control the movement of strangers, and even to influence the selection of juries; and as certainly also in his new Countess, who could be trusted to be both a capable hostess and a jealous wife.

We can picture the Countess entering on her new duties with zest, and it is probable that she would learn much from the Queen with her artistic tastes and French training. Her influence—tradition says her handiwork—is in the needlework that can still be seen at Hardwick: perhaps—more subtly—in the buildings.

We may expect that the Countess would supervise such alterations as were necessary to fit the buildings for the Queen's accommodation, but of these hardly any trace remains. Her first quarters indeed were not in any of the Earl's own residences, but in the royal castle of Tutbury, leased by the Crown, where the portion she inhabited, being built of half timber, has long since disappeared. The Queen's health suffered at Tutbury and she was moved to South Wingfield.[2] Here again of her chambers only the outer wall remains, but alterations appear to have been made in the kitchen at this date. The panelling in marble of a room over the buttery is almost certainly later and will be referred to again.

In the summer of 1569 the Queen spent a week at Chatsworth, and next year the visit lasted from May 25 to November 28; she called again as she went to and from Buxton in 1573. The fabric, which had been eighteen years building, must have been nearing completion to accommodate the Queen and her numerous retinue, but internally the house must have been far from finished, as accounts for fittings exist long after this. We catch a glimpse of the house in a letter from Burghley to the Earl, dated Aug. 10, 1573: 'I must end with my most hearty commendations to your lordship and to my good lady, wishyng

[1] The Earl had recently been building a lodge here. Lodge's *Illustrations*, ii. 226.
[2] Cf. Lodge's *Illustrations*, letter of October, 1569.

myself w^th^ hir att Chattesworth wher I thynk I shuld se a gret alteration to my good lykyng.'

In regard to Hardwick, traditionally held to have been visited by the Queen, recent writers have demonstrated the improbability by other arguments, to which it may be added that none of the present buildings were then in existence, but only the little house of John Hardwick above described. It was just at this time indeed that his son James, who had inherited it, got into monetary difficulties; his inventory is dated 1570. He had no legitimate issue, and probably then, certainly before 1576, the Shrewsburys purchased the estate, but the new buildings were not begun before 1584. Hardwick was first used for supplying timber to Chatsworth, as a letter of the Countess to the Earl shows (*c.* 1577):

My dear harte,

I have sende your letters agene and thanke you for them; They require no ansere, but, when you wryte, remember to thanke hym for them. If you cane not gett my teimber caryed I moste be w^th^out yt tho I gretly wante yt; but yf yt wolde plese you to comand Hebert, or any other, to move y^r^ tenantes to bryng yt I knowe they wyll not denye to do yt. I preye you lette me knowe yf I shall have the tone of iron: Yf you cane not spare yt I muste make shefte to gette yt elsewhere, for I may not now wante it.... I wyll sende you the byll of my wode stoffe: I prey you lett yt be sent to Jone that he may be sure to resave all: I thank you for takynge order for the caryage of yt to Hard-wycke: yf you wolde comande your wagener myght bryng yt thether: I thynke yt wolde be safflest carried. Here is nether malte nor hoppes. The malte cume last ys so vary yll and stynkenge as Hauks thynkes none of my workemen wyll drynke yt.

As the novelty of entertaining the Queen wore off the Countess engrossed herself in her building at Chatsworth, and of this the Earl bitterly complained. The Earl's payment for the custody of the Queen was quite insufficient to meet the heavy expense, and he was the more disgusted at the expenditure of his wife. Their son and daughter, Gilbert and Mary, were besides living at Court and getting into debt. Elaborate work that was going on at Shrewsbury House [1]

[1] Lodge makes a curious blunder when he says: 'The house which the Earl was thus embellishing *mentioned under the several names of Shrewsbury House, Shrewsbury Place, and my house in Broad St.*, appears to have been held by the Earls of Shrewsbury under the heirs of the 1st Marquis of Winchester...' The Broad Street house thus leased (on the site of the dissolved monastery of the Austin Friars near London Wall) was occupied by Gilbert Talbot. The Earls house at Cole Harbour, Upper Thames Street, appears to have been occupied as late as 1585 by Henry Talbot, but can hardly have been the object of this expenditure, as it was shortly afterwards converted into tenements (Stow's *Survey*, p. 89). The Earl had another house near Charing Cross (cf. Hunter's *Hallamshire* letter of Gilbert and Mary Talbot to the Earl, Feb. 13, 1578-9, signed 'at y^r^ Hon^s^ lyttel house near Charing Crosse'), but it was unimportant, and the site has not been identified. Probably the work described was at Shrewsbury House, Chelsea, which Mr. Walter Godfrey has identified with 43-45 Cheyne Walk (*Survey of London*, vol. ii, p. 76, where there are reproductions of the view from Lysons' *Environs*

we may suspect to owe its origin to Mary Talbot, or her mother, rather than to the Earl, who could not even see it, as he was forbidden to leave his charge. A servant of his, Richard Topclyffe, writing on Feb. 28, 1578, 'from M^r^ Talbots h^o^' says:

> This afternoon I called upon M^r^ Clarenciuxe and had sight of that woorke he hathe sett owt for the roofe of yo^r^ chamb^r^ besyds yo^r^ gallerye, w^ch^ as it shall excede in rarenes of devyce and beawty so it is thoght no too of eny estayt in Englande can be able in honor to reache to performe the lyke;

and Gilbert Talbot himself writes on the same date:

> I receaved your L^p^ letter on Wednesday last by the fynysher and accordynge to your pleasure have taken order that he shall have good glasse to worke and a room in Shrewsbury House to lye in, and to worke it; and after that he hath fynyshed the glasse he may take in hand the mending of such roomes in that your L^p^ house by rough castynge them and seelynge them as shall be neede of and then the season wylbe better for that purpose than it is now. As for the armes in glasse w^ch^ your L. wryteth that Clarentius the harolde did bespeke, I here it wylbe the fayrest glasse worke (that is syghtely) anywhere in Englonde to be founde. Clarentius taketh excedynge great paynes in the matter and such as when your L. seethe it you will thynke yourself very much beholdynge to him.

Gilbert was seeking the favour of the Earl of Leicester, which would involve lavish expense. The Earl's visit to Buxton and Chatsworth is referred to in the Chatsworth wage-book (MS. 4), which begins in July, 1577, and from which I shall now quote:

1577. Nov. 21. Itm pd to Hicket in full payment for silling [i.e. waynscotting] the Mayds Chamber and the closet after viii^d^ the yard over and above xlii^s^ vi^d^ that he hath already as apeareth by the book for v^xx^ xxvii^s^ vi^d^

1577–8. Mar. 17. Payd to Ambrose Russell uppon a reckonyng of his bargayn of the skrine as apeareth by his bill xx^s^

—This would be in the hall, and as Russell was a mason, must have been of stone or marble. The total cost was £13 6*s.* 8*d.*, about equal to £200.

1579. April 18. Payd to Jhon Shute the xviii of Aprill in full payment of his bargayn for the chemney in the Purple bedchamber measured by Robearts - x^s^ vi^d^

Robearts is probably 'Thomas Mason' of the letter: here he measures up a chimneypiece, and may have furnished the design.

and an old engraving, with a measured drawing of some panelling still existing). It is described in Faulkner's *Chelsea* as an irregular brick building forming three sides of a quadrangle (a fourth had probably faced the river) with a gallery 120 feet long, originally wainscotted in carved oak. It was here that the Countess stayed on her visits to London.

May 26. Item payd to Jhon plasterer to paye the plasterer that he brought with him fr[m] Kenelworth iii wicks at v[d] a day.

It looks as if these plasterers had been sent by the Earl of Leicester.

June 21. Itm geven by yo la. comandment to Thom[s] Robearts xii[d] to Thom[s] Accres xvi[d] to Nicholas Laverok xii[d] for working one Sunday and on night at the cōing of the Earl of Leicester.
Itm Jhon Shute for working iii holy days and one night ii[s] Itm Ambrose Russell for working on Sunday and tow nights xviii[d].

—There appears to have been a rush to finish the screen and chimney pieces for the Earl's coming. We shall see a good deal of Accres later. His material is referred to in the next item.

July 3. Itm payd to Thomas Alline uppō a reck[g] of his bargayn for gettinge blakstone v[s]

July 7. Itm payd to Jhon Lee for the making of a pond and clyving stone for it.

Probably the circular pond on the south front.

Itm payd Jhon Shute on a reck[g] of his bargayn for hewing the table for the turrit at the bridg end.

The old bridge was at the south end of the house. The bridge shown in Kyp's engraving gives the position, though as there is no turret we may perhaps conclude that the bridge was rebuilt.

Aug. 18. Itm paid to Outhram and Hollingworth by your lā comandment uppone a recking of ther bargayne for the turrite.
Itm paid John Shut by yo lā comandment upon a recking of his bargayne of workinge the pillars.

Dec. 7. Jhon Chanler upō a recking of his bargayne of tarris for the bridge x[s]

—tarris is balustrading. The pillars must have stood on either side of the gateway.

1578. Sep. . . . paid the same day to Lee, Outhrame and Hollingworthes tow men before hande uppō a recking of ther bargayne for walling the Rooe parke iiii[li]

Dec. 24. Itm payd to Thos Owethrame and Ward for topping of xxii Roods of wall about the new orchard at vi[d] a yard xi[s]

—The orchard is shown on the painting, on the north side of the house.

1578-9. Jan. 19. Itm payd for tow payre of banistrs ii[s] viii[d]

Feb. 16. Itm. payd to Thomas Alline uppon a recking of his bargayne for getting the steapes for the condyth and the iiii hearths.
Itm payd to Robert Ashmore for healping Hollingworth about the dowf coute and other places sevine days ii[s] iiii[d]

May 6. Itm payd to Jhon Shute on a recking of his bargayn for the tarris upon the wall aboute the base courte xl^{s}

May 11. Itm payd to Henry Greaves for setting willowes in the fish ponnds iii dayes.

18. Itm payd to Smyth the Carp upon a recking of his bargayn of the rof and gats iii^{li} vi^{s} viii^{d}

— probably the turret upon the bridge end.

June 20. Itm payd to the wemen of Edensor for swipping and bearing rubbitch out of the hous at the queens comñg hether.

Sep. 13. W^{m} Barber for hewing of ashler and table for tow gats in the basse corte iiii^{s}

Nicholas Laverocke for working threey pylasters v^{s}

28. Itm payd ould Shutt for tow days setting the tope of one of the gats in the base court and of a little tarris at the new stable end over the doer xii^{d}

1580. Mar. 28. Itm payd to Xpopher Saydgfeld for xi days work about the portall v^{s} vi^{d}

Itm payd to Ambrose for cleanssing work for tow days for the portall by y^{r} lā comm̄d xii^{d}

This is the last item from this wage-book, but on two loose leaves are some interesting 'bargains-in-great' or contracts between the Countess and her master workmen, written out in much the manner of a modern specification. The first exists in two forms, the draft, and the finished copy, and is with the Christopher Sedgefield just mentioned—a joiner who was employed also at Wollaton and Hardwick. I distinguish by italics the additions of the final copy and bracket what is there omitted:

Xpopher Saydgfeld hath takene by great the [great] parloure floure [to lay] at the upper end of the hall pfectly to finish and laye [to mak and set upp the portall workmanly to the height in every respect] *and* to seall the same parloure rond about wth frenche panell foure foot and tene ynches hye according to a paterne drawne for the same with base and arketrave *and* to set a cornish uppon the topp of the [flour] rom foure ynches in breadth dounward *or mor and to mak a portall of the same frenche panell to the hyght of the flour to be set upp and workmanly finished in everye respect and to mak for the topp of the same arketrav frisse and cornishe and tow dores on for the portall and on other for the lytle wayneschot chambr the steapts that fall into the portall and the steapts for the window and* to mak towe dores [and hang thē up] for the [dores] *turrit* at the bridg end the one to be hong upp to shut and the other to stand and a [playn] coberd at the great chambr dore with arkatrave frisse and cornish as himself shall think fytte for yt plac and for the doing hearof to hav in money vii^{li} xiii^{s} iiii^{d} wth meat drink and lodging for himself and his folkes temb^{r} naylles and glew [or any other things to be fond] and tene groats to by him candles all at yo^{r} lā charges but only his work and to be payd at thrye sondry tymes vidz at the beginging li^{s} iiii^{d} when he hath half doune his work fyfty on shilling and when he fully finished and ended this bargayne pfectly fyfty one shillings [and to mak and hang the portal dore and another that goeth into the little waynscot chamb^{r} and the

steapts that falleth into the portal and the steapts for the windoe]—*Elizabeth Shrouesbury.*

*Payed to Saydgfeld the xv*th *of november in part of payment of his bargen li*s *iiii*d *(and iii*s *iiii*d *for lyghts) his mark for the reaset of the same mone* S

Note the distinction between the cupboard which he is to make to his own design and the French panelling which is to be made to a pattern. 'French' panelling must be panelling with mitred joints, distinguished from the older fashion with mason joints.

Here is a bargain with a blacksmith:

Hinchclyf hath takene by great six casments to be mad for ye turrit at the bridg end to be very well and strongly mad in every respect he most tynne the bolts and hoches and for the same he most hav xviii^{s} the Irone to be fond at yo^{r} hō charge he most be payd for the same when he hath fully well and workmanly ended the same.

Elizabeth Shrouesbury.
H

Itm payd to Hinchclyf uppō a reckíng of his bargayne ix^{s}.

Itm payd to Hinchclyf the ixth of march in full satysfacīō and payment for his making of castments ix^{s}.

There follows a bargain with a carpenter, whom we find later at Hardwick:

Beighton hath takene by great four payr of gats to mak and pfectly to finish in every respect and to hang and set on bolts or locks tow for the north orchard and on to hav a wicket in, on for the Rer park wth a weiket and on lyk unto y^{t} in the bac court saving that it most be tene foot wyd and twelve foot hye and a wicket in the same gat and to set upp the gat at the washouse and pfectly to finish it with the hanging on of henges bares locks and to mak and hang a yard dor at the nether end of the turrit at the bridg end and to set on the lok and he most for the same liii^{s} iiii^{d} and be payd at threy sondry tymes vidz at the beginging . . . . and whē he hath half doun his work . . . . and at the end. . . .

He most mend and hang upp the dor at the lym house and finish all the woodwork that doth belong to any of the gats as topes or other wayes. Elizabeth Shrouesbury

Payd to Beighton the xvith of november in part of payment of his pargen xviii^{s} and geven to him to buy lichts to do the same xix^{s}

Payd to Bighton the xxiiiith of December xvii^{s} viii^{d}

Payd to Beighton the vii of Feb^{r} in full payment for this bargayn xvii^{s} viii^{d}

In January, 1581–2, an event occurred which had a great influence on Bess of Hardwick and her building. It is necessary to recall that in 1574 her daughter Elizabeth had been hurriedly married to the Earl of Lennox, brother of Lord Darnley and grandson of Margaret, sister of Henry VIII. The only child of this marriage, Lady Arabella Stuart, had in consequence a claim to the royal succession second only to that of her cousin James I. Her father died in

1576, and when her mother died on Jan. 21, 1581-2, she was left, a child of six, to the care of her grandmother. The Countess now devoted herself to plans for Arabella's greatness, and it seems probable that the palatial buildings she shortly began erecting were intended to support the dignity of her granddaughter.

From this year too the differences with her husband became an open sore. Differences of temperament there always had been: the Earl's caution went hand-in-hand with his parsimony; the Countess, bold in disposition and keen in the pursuit of wealth, equally well loved to spend it. The custody of the Queen, severing their married life, could not fail to start the scandal that would poison their minds. And yet, though there had been bickerings before, it was only now after thirteen years that they came to an open quarrel. The Earl himself, writing to Lord Burghley, dates it from this year, but links it with the death of his eldest son. Since then, he writes, 'she and her children have sought for themselves and never for me.' Francis had been his favourite; Gilbert, who was now his heir—and still more Gilbert's sharp-tongued wife—had little of his love. But is not the cause to be sought rather in the events to which we have just referred? It was now the Countess's policy to spend royally, but the object would seem little short of treason to the loyal Earl, though he could not be explicit with Burghley.

The marriage settlement appears to have given the Countess £2,000 a year besides part at least of her former income. In addition to her expenditure on Chatsworth she had in 1578 bought her sister's land in Nottinghamshire for £2,000 for her son Henry, and the following year, of Mistress Amyas or Conyas, land at Kirkby Hardwick for another £2,000 for her son Charles. In the quarrels which now ensued Henry—'my bad son Henry'—and his wife Grace Talbot took the Earl's part, while Mary and her husband Gilbert, and the brothers William and Charles, took their mother's side. Chatsworth was claimed by both parties, but in 1584 the Countess dismantled it, leaving William and Charles in charge, and moved into her father's little house at Hardwick. How soon she commenced building there is not clear; during part of 1585 she was in London[1] while the accounts open *in medias res* in 1587. While her income was uncertain she was not likely to do much, and we know that some of her principal workmen were employed at Wollaton during this period. When the case between her and the Earl was tried at York in 1586 she received only £300 a year with fuel, one of the Earl's principal houses in Derbyshire for her to remain in, and four or five servants paid by the Earl, though he 'doth further promise in respect of her Majesties' mediation a further gratuity of yearly provision for the said house'.

[1] Lodge's *Illustrations*, Henry Talbot to the Earl of Shrewsbury, Aug. 22, 1585.

The tentative way in which the older hall at Hardwick was built probably reflects this uncertainty of income. And yet the progress was much more rapid than at Chatsworth, which had dragged on over a quarter of a century. At Hardwick, though there may have been some work done before 1587, and there was some done after 1590, we can trace the erection of the greater portion between those years (pl. XXXI).

Unlike Chatsworth, there is no account for a 'platt'. That a masterful person like the Countess would suggest and direct, there is some proof and more probability; but who converted her ideas into concrete form? Even if a design was purchased from an outsider, whether 'master mason' or 'surveyor', it must have been considerably modified under a piecemeal method of building, with the need of retaining the old house for a part of the time. Which of her servants was responsible for such planning as was required? Of the master masons employed at Chatsworth, Roberts does not appear at Hardwick, and Accres, though he appears later, was now working at Wollaton. The two clerks who kept the accounts may likewise be ruled out. David Flud seems to have been incompetent and was relieved of his duties in the course of operations, while Sir (i.e. the Rev.) Henry Jenkins, who succeeded him and had occupied a similar position at Chatsworth, appears to have been a somewhat simple-minded clergyman, to judge from the scrawls on the outside of his account books, whose principal function was that of chaplain and pedagogue.[1]

Two craftsmen occupied prominent positions: of Abraham Smith we know that he designed moulds for a plasterer at Chatsworth, and we shall find him executing, and in all probability designing, work both in stone and plaster at Hardwick. John 'Painter', though not a mason, seems to have taken charge of and reckoned up materials for the new work. The choice seems to lie between these two, but mention should perhaps be made of a third, though he is barely more than a name. In 1582 there is an item in the General Receipts and Payments 'xii Dec. To Stobes for my work xx^{li}'. The form suggests that he was a paymaster, but his name does not occur at Chatsworth again. Just before, however, the Stable Court at Hardwick was begun he appears again:

1588–9. Mar. 3. Sir Richard stubs his man •ooooo [i.e. 5 days]	x^{d}
Mar. 17. Richard stubs his man oooooo [6 days]	xii^{d}
To crosland for three days work wth Stubs	xii^{d}
Mar. 31. [R]ic stubs his man humffrey wattkinson •••ooo)o(oooooo[2]	xxi^{d}

[1] Perhaps it is one of the Countess's grandchildren who writes across the page:

The truth if ye wold gladly have
I say S^{r} Henry is a knave.
Witness if ye wold have more
Come when the bell rings, ye shall have store.

[2] Probably nine week-days and a Sunday.



Photo: Richard Keene, Derby

Fig. 1. Hardwick Old Hall



Photo: Richard Keene, Derby

Fig. 2. Hardwick New Hall

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This almost suggests that he did the laying out of the Stable Court—and if the Stable Court why not the Old Hall? But certainty seems unattainable.

Passing on to the New Hall, begun, it must be remembered, in 1591, only four years later, there is at once a remarkable difference in the plan. Symmetry is now paramount, the six turrets all placed symmetrically, the two fronts and sides repeating each other, and every window matched by a similar one, whatever the disposition of the floors inside. And this is not the only change—the windows have projecting sills and architrave mouldings and the main stories are marked by horizontal bands composed of cornice frieze and architrave (pl. XXXI).

Why should there have been this sudden change? It can hardly have been due to imitation of others. Wollaton is the most prominent local building of the time, and Bess throughout her life was in friendly intercourse with the Willoughbies. But Wollaton was built between 1582–7, i.e. before the building of the Old Hall at Hardwick, and the contrast could hardly be greater. Nor in the New Hall is there any attempt to rival the elaborate masonry of Wollaton. There is not even any resemblance in the detail till we come to the fireplaces, which show that the marble mason Accres had been influenced by his employment at Wollaton.

The change between the old and new halls appears to have been a matter of opportunity—the death of the Earl in November, 1590, gave the Countess more ample means, so that on a fresh site she was able to build according to her desires. And in these circumstances she may have obtained a general plan from a professional planner, but again the evidence is scanty.

Internally indeed there is considerable resemblance between the two houses (figs. 1 and 2 and pl. XXXI). The central feature is a hall running *across* the building, two stories high, lighted at both ends, the 'screens' running across one end, with a porch in the Old Hall, a colonnade in the New, before it. In the Old Hall we can almost see the growth of the idea. John Hardwick's hall would run lengthways with the house, the offices at one end, the solar at the other, in the traditional manner of which Haddon is the nearest example. To enlarge the hall with the least disturbance to the other rooms was to add to its side. The entrance doorway, originally by the fireplace on the south side, was transferred to the north, and the 'screens' probably fixed in front of it, adding greatly to the comfort of the room. The plan had the practical advantage of utilizing the 'minstrel gallery' as a passage at first-floor level between the two ends of the house.[1] This had been impossible in the old type of hall except by the addition of an awkward side gallery as at Haddon. But there was another argument in its favour, which would have even greater influence on the builders—it lent itself to a symmetrical elevation on

[1] This idea was only seized in the New Hall.

the outside, with the doorway in the centre. Thus the door was placed in the Old Hall till the porch was added, and the inner doorway moved to the side, apparently for the sake of comfort. This motif was transferred to the New Hall with one alteration—the fireplace was placed in the centre of one of the side walls, where it would better warm the room.

Now this type of hall is a common feature in the Thorpe drawings, occurring in nos. 33, 34, 59 ('S^r George St. Poole'), 94 ('Sir Geo. Coppin'), 141, 152, 182 ('Banquetting Ho. at Holdenby, Sir Chrs. Hatton's'), 254 ('Hatfield Lodge'), and E, F ('M^r Wm. Powell'). No. 33 is indeed inscribed 'Hardwick', but it is a small house, and, except for this feature, does not otherwise resemble either the Old Hall or the New. It may possibly be Sir Charles Cavendish's at Kirkby Hardwick. In the Smythson drawings, however, there is a plan which bears a striking resemblance to the New Hall (fig. 3). The arrangement of the hall, projecting on either face, the general plan with six turrets, two on each long side and one on each end, the relation of the two staircases on either side of the hall—these all recall Hardwick New Hall. But the greater length between the turrets, with two rooms on either face between each turret and the hall, while at Hardwick there is only one; the consequent alteration in the disposition of many of the rooms; the exact correspondence of the two staircases, while at Hardwick one is pushed forward into a more cramped position—these things suggest the difference between the architect's conception and the client's realization. If this plan is by a Smythson it should be Robert Smythson, the 'Architector and Surveyor unto the most worthy house of Wollaton', who died October 15, 1614. But the want of resemblance between Wollaton and Hardwick, and the entire absence of Smythson's name in the Hardwick accounts, makes the authorship unlikely. On the other hand, there is the probability that the Smythson drawings are a collection of drawings, some by Robert Smythson, some by Huntingdon Smythson, and some by others whose names we cannot now recover; and the Hardwick plan may be by one of these. Indeed, it is doubtful if Robert Smythson was more than a master mason, perhaps not even the principal one, as a certain Lovatt appears to have superintended at Wollaton, while Smythson managed the quarrying at Ancaster.[1]

The accounts for both buildings at Hardwick are so full that, after outlining the general progress, it will be advisable to treat the different craftsmen separately. The accounts begin 'Workes begon on mndaie the [24^th] of July at Hardwick and End [ed] on saterday the xxix^th of July'. There are 2 masons, 7 wallers, and 4 carpenters at work, but the work is not described. But after the end of the wage bill for August 19 there is a note 'The galeree roff/ floor walls et cetera/

[1] Wollaton would be admirably proportioned save for the incongruous central feature, but Mr. Gotch has shown that this is contemporary. May not the central hall and the room over have been added by local talent to some design, perhaps French or Italian, of the courtyard type?

A

HARDWICK OLD HALL GENERAL ELEVATIONS

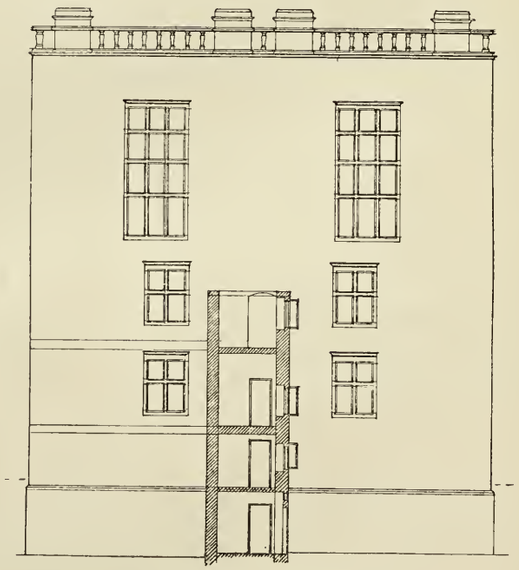
Scale of 0 10 20 30 40 50 60 70 80 90 100 feet



SOUTH ELEVATION



EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION

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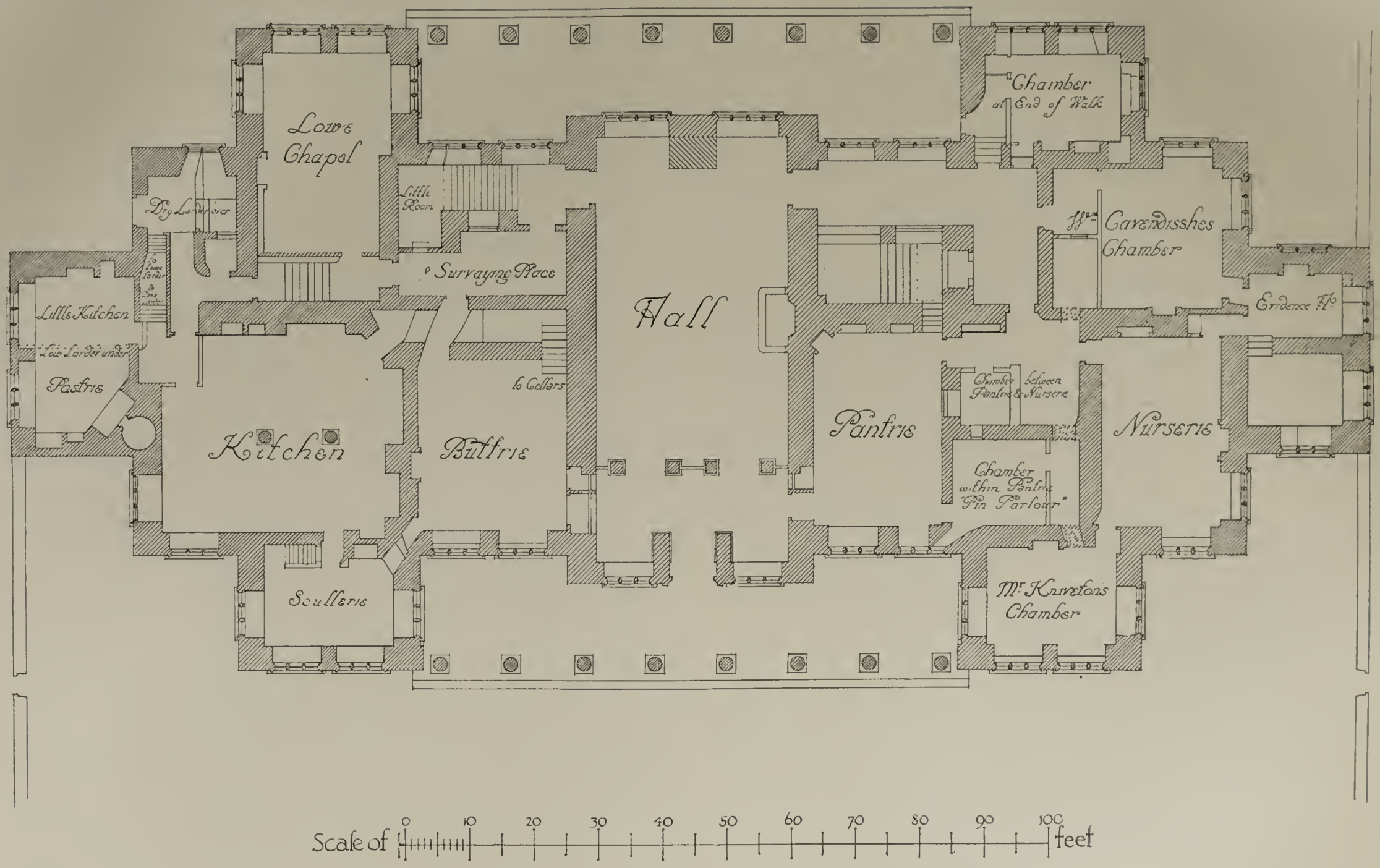


Fig. 2. Hardwick New Hall ground floor plan.

lett for viii^{li} payed to the workman by my ladie', and in the portion devoted to 'bargains in great' there appears:

[Sept.] To James [Hindle] the plasterer payed by my ladie for the roughe castinge of the great chamber end xiiii^{s}

[Nov. 14.] Payed/ by my ladie/ to James the plasterer the same daye upon a bargen of $\overline{\text{for}}$ nobles for doing the rowmes under the gallery and the walles/ over the head and the walles/ and the Roms at the steare at the cominge in at the gallery dores both with plaster and lyme and heare.

Though it is not quite clear, I assume this to refer to a room on the second floor at the east end of the hall, perhaps the 'lowe dining chamber' of the Inventory; this portion being raised and altered shortly afterwards, by the doubling of the south wall, with arches thrown across the bays, and by the throwing out of the east wall. At this time it must have been slated, as on September 2 three 'slatters'—Robert, Ottwell, and William Heginbotham appear.[1]

After November the names of the wallers, who had been increased to nine, no longer appear, but we find:

Receved of my lady viii^{li} xv^{s} to paye Thomas hollingworth upon a bargen in great as appereth more att large by his billes Indited, over and above geven to hime by my lā xxv^{s}

So Hollingworth must now have been employing other wallers or acting as the head of a company. The item probably refers to the rebuilding of the central portion (the hall), as early in 1588 there appears:

A bargen lett to Hollingworth/ and others/ as apereth by his covenants.
To Thomas hollingworth and to the Rest of the wallers for the walling of 22 Roodes[2] of wall over the Halle at iiii^{s} the Roode iiii^{li} viii^{s}

That the building of the kitchen and western portion must have proceeded almost concurrently is shown by the following (pl. XXVIII, fig. 2):

To Thomas Hollingworth and to the Rest of the wallers for the making and ffynishinge of the ovens xxvi^{s} viii^{d}

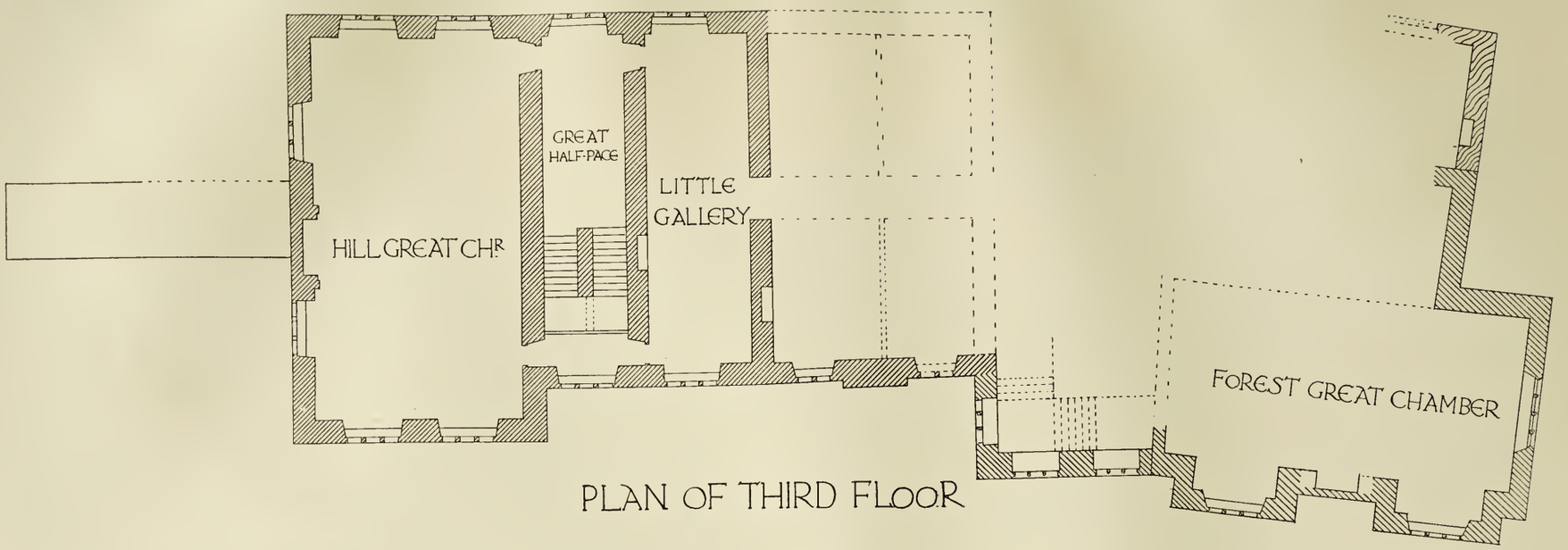
Another item is instructive as to the part the Countess played:

To Thomas Hollingworth and to the rest of the wallers for the walling of ten rood of wall and for the pullinge downe and settinge up of a little peice of wall which your honor did [allow them] a Rood.

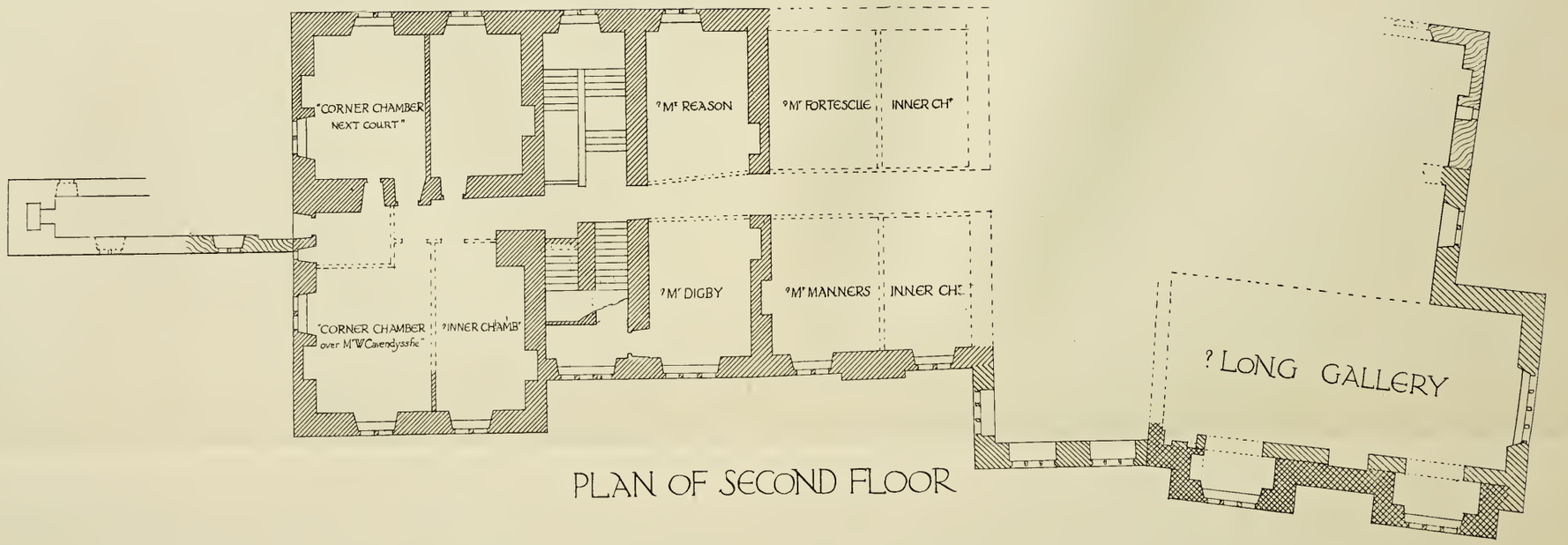
[1] Ottwell Heginbotham is probably the same man who appears in the Talbot correspondence of 1579 as the spokesman of certain Ashford tenants who had been ejected by the Earl, and this would indicate that they were countenanced by his wife.

[2] A rood was 7 yards long × 1 yard high × 1 yard wide [cf. note at side of Smythson drawing 'Riding House at Welbeck']. A modern rod is $5\frac{1}{2}$ yards long × $5\frac{1}{2}$ yards high × $13\frac{1}{2}$ inches wide.

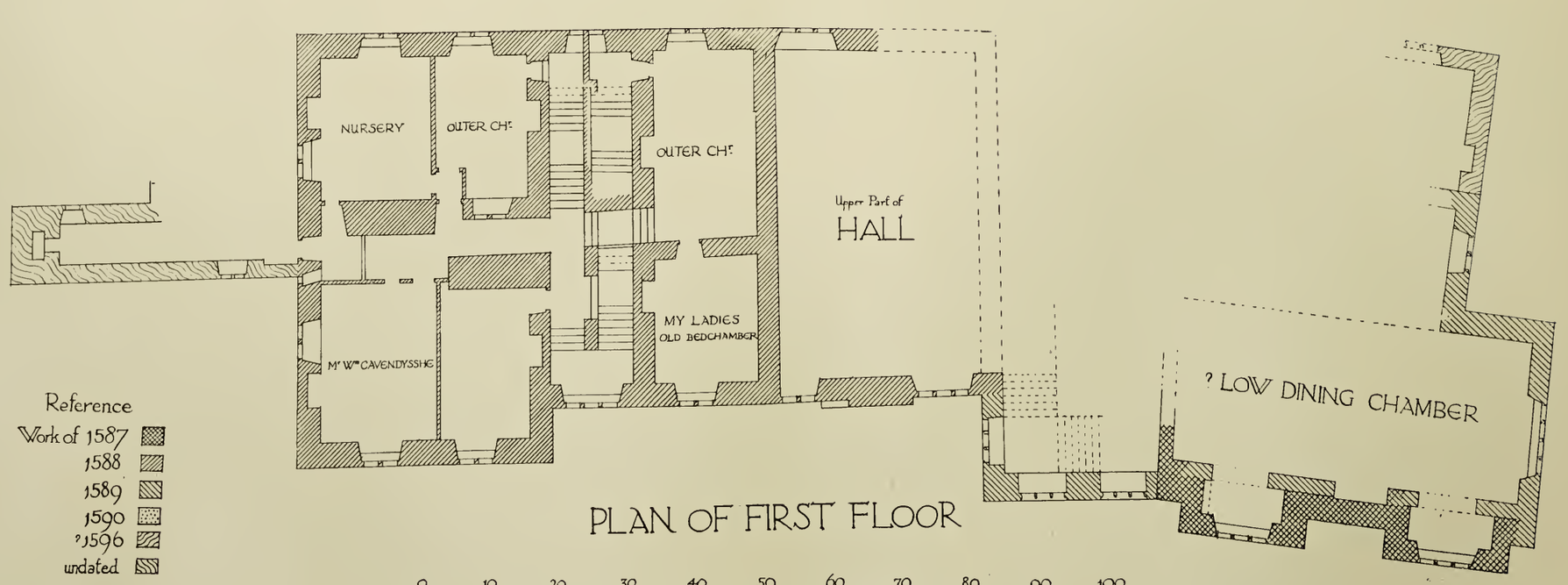




PLAN OF THIRD FLOOR



PLAN OF SECOND FLOOR



PLAN OF FIRST FLOOR

HARDWICK OLD HALL UPPER FLOOR PLANS

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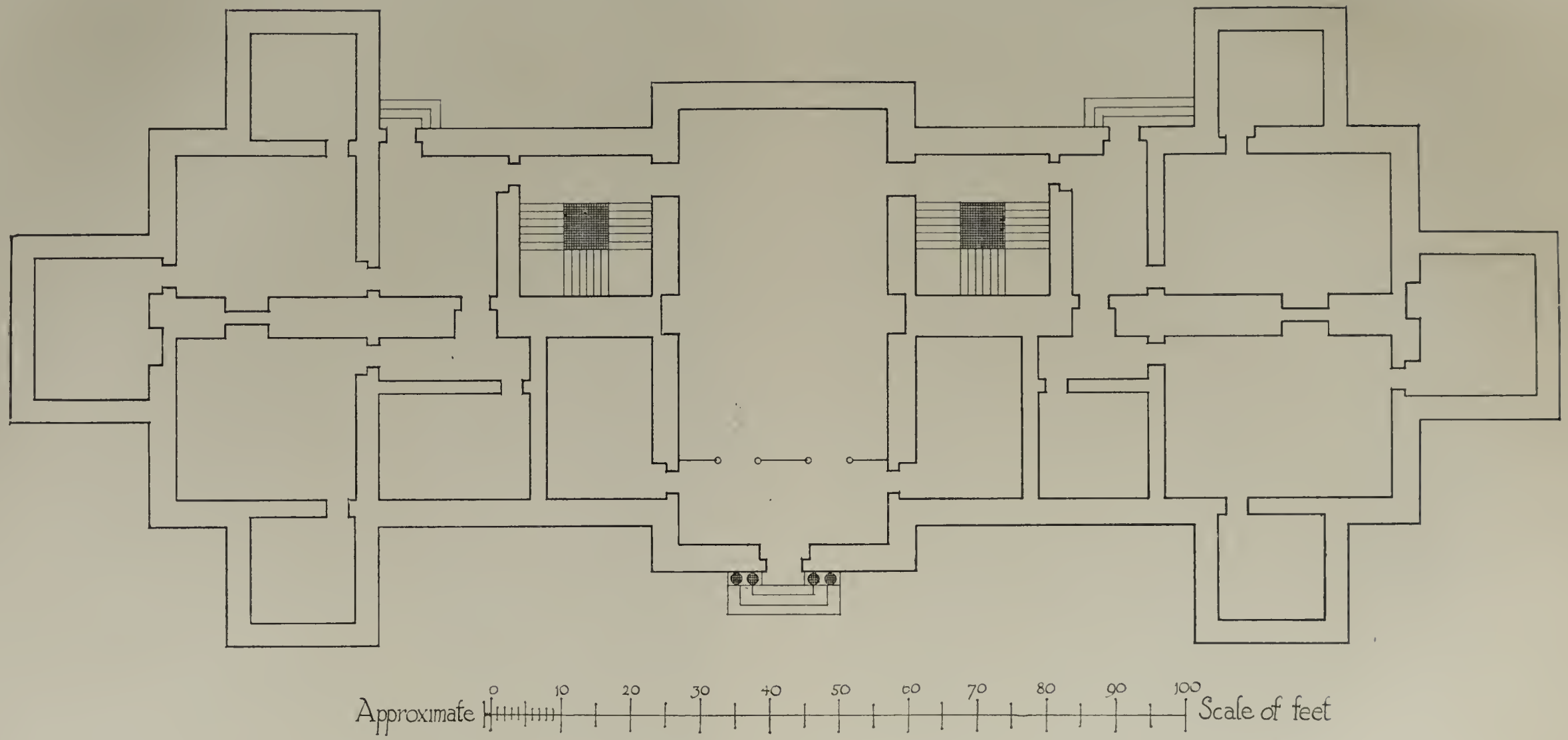


Fig. 3. Unnamed plan in the Smythson Collection.

That older buildings had to be removed is shown by two items:

May 20. To Robert Ashmore for the digging of the foundacon and takinge dounne the old chemney iiii^{s} ix^{d} ob.

Aug. 19. To John Beighton [a carpenter] for one dayes woork when he puld doūe the old lodgings ix^{d}

The progress was astonishing: in August the wallers are on the second story (there is a note 'the second story is in all three score twoe Roods and a halff'); in September they begin the third story ('the third story is in all fifty five Roods and a halff'); in October they began the fourth story; on November 24 5*s.* 4*d.* is paid for the 'settinge of the iiii wendose of the great chamber'—that is the Hill Great Chamber of the Inventory, now called the Giant's Chamber. Meanwhile timber was being felled at Heath and Pentridge for the floors, partitions, and roofs:

Nov. 14, 1587. Payed by my Lady to henry holle upon a recevinge five shillinge for squaringe and saying trees at the heath.

June 17, 1588. To Richard hoyland [a blacksmith] for viii weanes of Pilleseley w^{ch} ladd Timber from Penttridge xvi^{d}

Dec. 7, 1588. lett to Fogg allthe studdḡ and particions over the hall as for xx^{s}.

A partition over the kitchen suggests that the planning of the divisions was left till after the walls were built. There being no beam or corbels provided to carry it, it is constructed like an open roof truss, so that the weight of the partition is conducted as a thrust on to the walls.

Mar. 1, 1588-9. To Rauff Smyth upon a reckenīge of his Bargene aforehand twentty shellings for the great chamber Roof of ye new buildinge xx^{s}

Smith seems to have got into difficulties over this bargain, for in November his house was mortgaged to the Countess for 28*s.* 0*d.*, and Beighton is paid for the 'bargain that Smith should have done'.

Then come the items about Sir Richard Stubbs to which I have referred above, and they are followed by items for the buildings on the west of the Stable Court:

Mar. 17. To Hollingworth and Crossland for digginge for the foundacon of the bruhouse wash house and darey house vii^{s} iiii^{d}

Meanwhile the Old Hall was being finished: Beighton takes a bargain for the 'little gallery roof' and slates are got for it:

July 19. Slater. Edward Worthington for xxii days woorck xii dayes at hardwick x at whittington and on on the eastmore vii^{s} iiii^{d}

To Newbold for vi hundreth [and again 'v hundreth'] of slate at three Borks vii^{s}

To Parker the slater for xx hundreth slate of whittington More at xvi the c xxvi^{s} viii^{d}

iii thousand ston lath nail for the slater for the gallery rooff.



Photo: Richard Keene, Derby

Fig. 1. Gate-house, Hardwick New Hall



Photo: Richard Keene, Derby

Fig. 2. Porch, Hardwick Old Hall

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This 'little gallery', with its slate roof, must be the fourth story room over the Buttery with the Hardwick arms supported by stags over the fireplace (pl. XLII, fig. 2).

June 8, 1589. To harry Nayll and Ric[d] mallery for hewinge and settinge xiii yeards of Table to goe about the Great Chamber at vii[d] the yeard vii[s] vii[d] [and again 'xii yeards of Table for the new Great Chamber'].

June 21. To Hollingworth for hewinge of the grand watter Table that goeth at the Great Chamber sid Towards the garden and for the broching of ashler that stands under the sayd Table xi[s] i[d]

July 5. To Thomas Hollingworth for the walling of xxxv roodes of walle w[ch] is the wholle some from the bothom of the foundacon to the toppe of the leads (the windoses beinge abatted) at ii[s] viii[d] the rood iiii[li] xiii[s] iiii[d]

To what do these items refer? The 'new' great chamber must be the fourth story room (the Forest Great Chamber of the Inventory) now added over the east wing with the east end rebuilt 'from the bottom of the foundation to the top of the leads'. This portion is different in style from the rest—broach ashlar instead of rough walling covered with rough cast, and the windows for the first time moulded with an ovolo. This anticipation of the more monumental character of the stonework in the New Hall in the portion of the Old which was to face it suggests that the new building was already planned in the Countess's mind. The demarcation of the new story is plain on the south wall; the doubling of the wall behind, carried by arches across the openings, was to carry the heavy beams of the Great Chamber floor (pl. XXXII, XXXIII).

July 19. To Thom[s] Hollingworth for the wallinge of xxiiii roods of walle of the ii Roñes next to the great chamber and about the great chamber iiii[li]

July [? Aug.] 2. To Nayll and Mallery for hewinge and worckinge of three score and xiiii footts of windo stuff of the botteld mold at iii[d] ob ffo. xxi[s] vii[d]

[Also 26ft. 8in. of 'square peare' and 12ft. of 'pcipall'—though I cannot identify these.]

Aug. 2. To Thom[s] Hollingworth for wallinge xxxiiii Roods of walle over my Ladyes Chamb[r] and the next chamb[r] to that at iii[s] iiii[d] the Rood v[li] xiii[s]

Aug. 16. To John Beighton in full payment of his bargen of the ii Roñes next to the Great Chamber xxx[s] so that he hath all his money w[ch] is vi[li].

Aug. 23. Paid to the plum[r] for leading the little roof [again 'the ii little Roofs'] over my La[s] Withdrawing Chamber w[ch] money I had xxx[s]

Aug. 30. To Thom[s] Hollingworth for the settinge of the iii Great Chamber windoes x[s]

To Thom[s] Hollingworth for the settinge of ii windoes over my la. withdrawing chamber xvi[d]

Oct. 11. Paid John Beighton for the full fynishing and worcking of all the great chamber roof, the outcast windose and the little Turrett over and above iii[li] he had afore so that he hath in the wholl vii[li].

Owing to the demolition on the north-east portion, the position of the Withdrawing Chamber is uncertain, but it should be close to the Reception Room, i.e. the Forest Great Chamber. The 'outcast' windows are, of course, the bay windows in the latter room. The great staircase seems to have been added about the same time, to give access to the new suite; the two lower windows are old windows probably moved forward from the old wall behind, while the walling and upper windows follow the new model:

Oct. 11, 1589. To Thom[s] hollingworth for the wallinge xvii Roods of wall of the great chamber and stayres at iii[s] iiii[d] a Rood lvi[s] viii[d]

Mar. 28, 1590. Payd to Thomas ffogge on a Reckinge of his last bargen of the stayres and boords xxvi[s] viii[d]

May 23. To the sayers of pentridge for sawinge of three scor and vii steppes and for the sawinge and squaringe of all the whole bargen that ffogge did take xxiii[s] vi[d]

Following this the Porch (pl. XXXIV, fig. 2) was built, and in April Hollingworth builds the court wall; whether the turrets mentioned are the two buildings at the corners of the court is not quite clear:

[? Nov. 1589.] To Nayll and mallery for the hewinge and setting of viii yeards and halff a foott for the porche when y[t] is sett vi[s]

To winchester and lenord for full setting and ffynishinge of the Turrett next to the halle of xxxvi yards and a halff of Table at ii[d] the yeard vi[s] i[d]

To winchester and lenord for the settinge liii yeards of hallff heall head and solle for the same Turrett at i[d] the yeard iiii[s] v[d]

April 17, 1590. To Thomas hollingworth on a Reckinge of his bargain of the Court Wall for on fortnight ii[s] vi[d] so that he hath in the wholl lvi[s] with the liii[s] vi[d] he had before lvi[s]

The next problem was the water supply to the house. There is an account:

Sept. 28. To the Carpenter that shold have don the well for three dayes woorck for himsellffe & his man and for ffelling of his timbar vii[s]

Where the well was is uncertain, but the Conduit House for the storage of water still stands to the south of the Old Hall, and is apparently described under July, 1591, '150 fot of stone for ye arches of ye well', though again, July 8, the 'pill[r] y[t] is in y[e] midle of y[e] well 124 foot at i[d] ob y[e] fot xv[s] vi[d]' can hardly refer to this building. The arches of the Conduit House sustained a lead cistern—on August 16 'Wm. Bromley Joyner' is paid for twenty-two boards that he had supplied for the great cistern. The pump appears to have stood below; the lead service pipe to the house still exists in portions, but the feed pipe from the well has not been found. Originally, the arches were tied by diagonal tie rods at the level of the springing; these have been subsequently cut through and tie rods on the sides of the pillars substituted, while the lower portion on either side is filled in with



Photo: Richard Keene, Derby

Fig. 1. The Coat of Arms



Photo: Richard Keene, Derby

Fig. 2. The Forest Great Chamber

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a solid wall as though the cistern had been dropped to a lower level. Presumably the original cistern was too high for the pump.

Sep. 25. Ground table and other stuff as followeth for the well :
To Gregory Hamand for thirteen and a half feet of ground table at iii^{d} a foot iii^{s} iii^{d} ob.

Oct. 23. [To W^{m} Hulley] for the squaring ii chappters for the Well Hoss x^{d}
To Hulley, Battley, and Cuttberd for hewing xxxiiii foots and d. of parpen ashler for the well at i^{d} ob the foot measured both sids.
To Hulley for hewing of a peec of the head that most stand over the parpen ashler cut iii feet longe xii^{d}

On August 13 William Sanderton is paid £10 on his bargain of £23 6*s.* 8*d.* for the conveyance of the water to the offices; but it does not seem to have been completed till December 10, 1591.

The items for the 'Well light', which somewhat confuse these accounts, must refer to a lantern in the north-east portion of the house, now no longer existing. They include, May 22, 1591, 'Robert Winchester hewinge and woorckinge of ix foots of playne windoe stuffe for the stayres that Yearn setts up in the well light'; September 16, 1592, 'William Holme roughcasting the well light'; December 10, 'Snydale glassing the well light, contayning in meas^{r}. xiii^{xx} vi foot (= 266 ft.) at v^{d} the foot'; December 23, 'casments in the well light'. Then, again, there are accounts for a 'Well House' of timber covered with slate which may have been connected with the former well, or with an entirely separate supply for the New Hall. The items include, February 10, 1592–3, 'Mylington' (a carpenter) building the Well House'; August 27, 1593, 'Slates for the Well House'; and even so late as July 11, 1597, there is an account 'paid Mylington for clyving lath for the Well House, with mending a pair of whils', '1500 ston lat nail for ye well house', '100 eightpenny nail to mend ye bottom of ye well whiell'; 'William Plum^{r} for bringing up the watter'; while Thomas Durham, July 3, 1597, receives 'iii^{li} in part of payment for conveying of the wat^{r} up at Hardwick', and again, May 5, 1599, 'given to the plumar that should have broughte water from the lande tene shellings.'

But to return. In January, 1590–1, the masons were at work on the stable:

Jan. 16. To nayll and Mallery for the hewinge and woorckinge of vi seingell Transomd windows at six shillings the windowe xxxvi^{s}
To Robert Winchester for hewing and woorckinge of three doores for stable at iiii^{s} the doore xii^{s}

'So that all the wendoyes of the stabyll benethe and above yn endod and fore dore one a large dore' adds Bess in her own hand.

On November 18, 1590, the Earl had died, and with the larger resources at her command the Countess immediately embarked on the New Hall. The first reference is on December 5, 'To Henry Neal and Richard Mallery for tow smoothe

steppes contayning xii foot being sett by Hollingworth in the overmest chamb[r] next to the leads *towards the new foundation'*. In March, 1590–1, there is the first direct mention of the work, where the masons on the wage-sheet are described as 'parelling the window stuff for the new foundation', while Robert Cordley is paid 'ii[s] for making the little lim kiln as big as the great', evidently in anticipation of the new work. On July 17 William Carpenter is paid 'ix[s] iiii[d] for making xiiii sawpits at Crich Chakase at viii[d] apees', and there are long lists of masons' stuff of which one sample will suffice:

Aug. 14, 1591. to Henry Neall[1] x foot of Ashler	xii ob.
iii midell peeces of windo sole w[ch] cometh to vii foots and a hallff at 4 the foot	ii[s] vi[d]
xii carttoces[2] xxxiiii being payd in the wholl	iii[s]
xiiii foots of the casmont mold at v[d] foot	v[s] iii[d]
	11[s] 9[d] ob.
To mallery xx foots and a hallff of the oge mold to ffynish the Kytchine doore and dresser	vi[s] x[d]
on midell peece of sole contā ii foots and a halff	x[d]
	7[s] 8[d]
To hamand xii foots of the casmont mould for the chemney head in the parlure and the pantre door head	iiii[s] vi[d]
vii foots of the great oge mold hall doorhead	iii[s] iii[d] ob.
xxi foots of ashlar	ii[s] ii[d] q.
	9[s] 11[d] ob. q.
To John Ward S[r] xxxv footts and a halff of ashler	iii[s] ix[d]
To Thom[as] Beane for xxvii foots of ashlar	ii[s] x[d]
xxiii foots and a hallff of arches for the Ranges in the Kytching Cheimneys	vii[s] x[d]
ii playne doores on for the scullery & another for the bruhouse Court and hallff a doore for beckets for the boylling rāg	x[s]
	20[s] 8[d]
To John Ward J[r] xii foots of ashlar	i[s] iii[d] ob.
of playne doore james somitch as cometh to a doore and a halff & other seling of doores	vi[s]
	7[s] 3[d] ob.
To Walter Chellten midell peeces of sole contayinge vii fots	ii[s] vi[d]
ii foots and a halff of ashler	iii[d]
for a doorehead of the oge mold for the haull doore vii foots	iii[s] iii[d] ob.
Som is iii[li] vii[s] ii[d] qt.	

[1] A mason whose banker mark I have discovered in many places.
[2] Consoles under the window sills.



Photo: Richard Keene, Derby

Fig. 1. Chimney-piece in Hall of Hardwick Old Hall



Photo: Richard Keene, Derby

Fig. 2. Chimney-piece in Mr. Wm. Cavendish's Chamber

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While the masons were being employed by piecework, the wallers were employed by day-work during the better part of this year. But in November, 1591, there is a remarkable change. One John Roads, a foreman mason, who, with his brother Christopher had been employed at Wollaton, now takes on a contract for the whole of the stonework—a bargain of much greater magnitude than any hitherto, though as he is paid by tale it does not resemble a modern contract. Roads appears rather as a separate employer than as a leader of a company, and it is remarkable that the masonry at the New Hall has, in addition to the ordinary banker mark, a segment of a circle usually described round the first banker mark, but sometimes separate. It may, on the other hand, be the check mark of the clerk of works. When he begins there is a note 'delyv[d] to Roads 129 foot of ashler w[ch] was lift befor he tok his bargayne w[ch] is to Recking for'.[1] At the same time there was a change in the clerk of works. As already mentioned, the Hardwick accounts had hitherto been kept by David Flud. He was probably unsatisfactory—his last account is checked by Bess, apparently in some temper, as it is added up several times and each time wrong. The following week there is a note in her handwriting: 'Memorandone. syre hary genkensone entere to take charge of the werkemen and kepenge of the boke the fortent of november yn the thre and thourty yere—E. Shrouesbury.' Jenkinson, as we have remarked, had been similarly employed at Chatsworth, and as the Countess now set out on a journey to London, it is possible he may have been installed as an older and more trusted servant. The London journey was a lengthy one, the Countess spending many days going down the river from Chelsea to the City, and bringing great stores of plate, tapestry, and other furnishings for the New House, which are outside the subject of this paper.

When Roads took his contract the masons were dressing stone for the second story, the first being nearly built. By June of the following year (1592) he is paid for hewing 138 feet of ashlar for the third story, and on September 16 for walling 23 roods of wall and 40 roods of rough wall for the same story. On June 30 there is a note 'the windows being all doun [done] but the turits' and on September 8:

Paid to John Roads for hewinge of tow windowes contayning in measure lxiiii foot apes [apiece] for the turrits xlviii[s]

Ap. 6, 1593. Paid [J.R.] for setting four windowes in the turrit ov[r] the scullarye contaying in measur lxiiii foot apec at ob the foot x[s] viii[d]

Ap. 20. Paid [J.R.] for hewing ii[c] foot of window stuf for the highing of eight windowes for tow of the turrets uppon the leads vidz for everye window xxv foot at iiii ob the foot iii[li] xv[s]

Paid [J.R.] for setting one hundread foot of window stuf to hightene four windowes ov[r] the scullary vidz xxv foot for every window at ob the foot iiii[s] ii[d]

It thus appears that after the windows in the turret over the scullery—that is

[1] Roads could not write: his receipts are signed with a +.

the north-west turret—had been set, the windows, and consequently the turrets themselves, were raised by the height of an extra light. It could hardly be any one but the Countess who decided on this alteration, and we can fancy that the original designer would not be too well pleased if he saw it, as it adds an additional element of uncouthness to the turrets. But it is a gain to the outline of the building.

Another interference with the plan is revealed the next year:

Oct. 19. Paid John Rods for hewing xxii feet of cornice for the nether story where the walks should have bene at vi^{d} a toot—xi^{s}.

In other words the colonnading at the four corners was omitted; and though the rooms behind them would have been somewhat gloomy if they had been built, the omission plays havoc with the design.

By September, 1593, all the windows had been heightened, and on October 5 there is a note:

pd (J.R.) for setting tow hundread and xviii foots of arkatrave frise and cornishe for the tow turrets att iii^{d} the foot and so he is pd for setting of all the turts.

The core of the building was therefore run up between March, 1590–1, and October, 1593, or in the astonishingly short space of two years and a half; but it was another four years, namely October 4, 1597, before the Countess was able to move into the new house.

The work that was going on elsewhere can be followed from the items given below:

In the Old Hall: May 22, 1591. To Thomas Bracks for six score and xii footts of glasse for M^{rs} Knivetons window and on other windoe over that and on window Towards the dove coat [1] at iiii ob the ffoot; adding: 'and that the glassier most have no more untill he hath ffȳshed the great chamber'.

May 29. Payd to Willī bromley and henry bromley in ffull payment for the seelling [panelling] of ii chambers at hardwick, the on over the Kitchinge and the other over pastery contaȳing boath seven score and eleven yeards and five ffoots at xx^{d} the yeard twellve pond xiii^{s} iiii^{d} the sayd W^{m} and henry had of that aforhand vi^{li} vi^{li} xiii^{s} iiii^{d}

Payd to will bromley and henry Bromley on a Reckinge aforhand for seellinge of iiii chambers the on over my ladies chamber and other over my lades oldd bed chāber and the other being the chamber wthin the imbrodres chamber and my ladies wthdrawīg chamber the some of xl^{s}.

To John Yearn on a reckinge of his bargen of the stayres x^{s} so that he hath in the wholl xxx^{s}

July 31. Paid to Snidall the glassier in ffull payment for glase for the great Chamber next to the hill vi windose w^{ch} cometh by measure to seven and twenty score ffootts of glasse w^{ch} after v^{d} the foott is xi^{li} v^{s}

[1] Mentioned in James Hardwick's inventory, but no trace of it remains.



Photo: Richard Keene, Derby

THE HIGH GREAT CHAMBER

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Recev[d] by Snidall of that some iiii cases of glasse w[ch] cometh to v[li] vi[s] viii[d] and xl[s] paid befor this payd now in ffull payment iii[li] xviii[s] iiii[d]

Nov. 10. To Richard Snidalle for the glassinge of four windose over the old stayre and on other by the side of the Great Chamber contayning by measure six score xii foots of glasse after v[d] the foote whearof the sayd Snidall is to allow my Ladie for eight sheafe of glasse after the Rate of xx[d] a sheaff w[ch] is xiii[s] iiii[d] so now due to the sayd Snidall xli[s] viii[d] so that all the windose about the house is glassed and payed for savinge iii windose of the south side of the house upon the grond, the three cassmonts for the hall windose and ii windose of the north side upon the grond xli[s] viii[d]

May 15, 1592. Paid to W[m] Plum[r] and his men for casting 3 fothers [1] of lead and covering the hall porch xii[s]

July 29. Paid to Snidayll the glasyer for seavene casments and one paynne of glase contaying in measur xxxiii foot at v[d] the foot, fyve of ye casments seet up in ye north syd of the house and the other of ye sowth syd and west end vidz i castment and a painn in ye sowth syd and i castment in ye west end xiii[s] ix[d]

Paid to Snydayll the glasyere for glassing ye tow windowes in the steares [2] yt looketh into the hall contay̅g̅ lxxiii foot, for tow castments in ye low great chambr [3] vii foots, for one payne for ye drye lard[r] x foots and for tow windowes and for a painne for ye Kechin windowe one north syd of the house contaying in measr l foots at v[d] the ffoot so y[t] all the wholl cumeth to i[c]xl foot lviii[s] iii[d]

Aug. 21. Paid for hewing xxix steppes for y[e] east great chamber door at i[d] qt the foot iii[s]

Sept. 16. Pd to W[m] Holme in full payment of his bargayn for Rough casting ye well Lyght xiii[s] iiii[d], shuttinge [plastering] and whytting the Romes in the house w[ch] wear contayned in his bargayne xl[s], in all liii[s] iiii[d]

Sep. 30. Pd to W[m] Bromley in full payment for seylling the low great chamber xi[c]xvii yards at xx[d] the yarde xix[li] xv[s] wherof he hath recev[d] of John Paynt[r] in tymb[r] xl[s] and of me vi[li], in the wholl viii[li] so now in full payment xi[li] xv[s]

Pd to W[m] Bromley more for sylling of vii windows contaying in measur xxvii yarrds at xx[d] ye yarde xlv[s] vidz tow of ye great w[th]drawing chamb[r], on in ye bed chamb[r] next to it and on over y[r] ho[rs] old bedchamb[r].

Oct. 14. Pd to Neylle and malary for hewing y[e] gats vidz for 36 foot of arkitrave frise and cornish at ix[d] the foot xxvii[s]; for 30 foot jame and head at x[d] xxv[s], for tow chap[rs] and tow baces iiii, for tow pylast[rs] and ii plynts w[ch] are set under the baces 57 feet at i[d] ob the foot vi[s] vii[d], and so ye gats is finished all saving finialles [4] over the topp of the cornish.

Dec. 10. Pd to Snydall ye glasyer for glassing the well Light contaying in measr xiii[xx] vi foot at v[d] the foot v[li] x[s] x[d]

Pd to bromeley the Joyner for syllinge of seavene windowes contaying in measur twinty seavene yards at xx[d] the yard xlv[s] vidz iiii of the windows next ov[r] M[r]

[1] A fodder = 2,000 lb. 'Two blocks make a pig and 8 of these a fodder'—Vernon and Hood's *Beauties of England and Wales*, vol. iii.

[2] i.e. the main oak staircase.

[3] Probably the room under the Forest Great Chamber.

[4] Now disappeared or never finished.

Cavendish lodginge, one in S^r^ Charles Lodging, one in the chamb^r^ next ov^r^ agaynst it, and the other in Owene his Chamb^r^.

Jan. 27, 1592–3. Payd to Snydayll the glasyer for xxi foot of glase at v^d^ viii^s^ ix^d^ vidz ix foot for ye new steares into ye galary iii for a lowpe holle in M^r^ Hoods Chamb^r^ and ix foot for tow castments in the garate whear John Paynt^r^ is viii^s^ ix^d^

Paid for a stocklock for John Paynters chamber.

July 14, 1593. Payd Snydall the glasyer for glasing of threey windowes in the chamb^r^ whear M^rs^ Kniveton [1] lyeth at ye dayry house every window contaying in measur xxiiii apec lxxii and for the window in the end of the galary xvi in all foure score viii foots at v^d^ the foot xxxv^s^

March 22, 1594–5. Paid to Gryffine and Adames uppon a Recking of xl^s^ yt the are to hav for working the chemney pec [2] in the upp chamb^r^ in ye old house xx^s^

Paid to Gryffyne and Adames in full payment of ther bargayne of xl^s^ the most hav for the working and setting of the chemney pes in the east great chamb^r^ in the old house xx^s^ and for the arkatrave and frise for the same chemney iii^s^ w^ch^ is xii^d^ more than yt is worth but yt my lā comanded them to do it and so my lā gevethe them xii^d^ ov^r^ and besyds the iii^s^.

Sep. 20, 1595. Paid to Bramley and his man setting up arkatrave and cornish in the East great chamber ether of them viii days v^s^ iiii^d^

Feb. 9, 1595–6. Paid to W^m^ Gryffine for . . . things he did in ye old house viii days on day laying strawts in ye wood yard doore, on day making holes in ye East great chamb^r^,[3] on day opening ye tunnel in ye low bakt mete house [4] and on day setting ye chemney bracket in the room over the chamb^r^ whear Accres works.

In March of this year there begin a great number of items for the 'new stears', 'turret', and 'tower', 'at the old galary end'; these include:

11 steps 7 ft. long, 21 turning steps total length 174 ft.

42 feet of paving for the half pace in the stairs.

979 feet of 'queans' [quoins].

3 doors, various window stuff including 'one window for the court side in the galary and 23 foot of table for the 2 windows for the galary syde in the court', also 16 cartoces [consoles] for windows.

278½ feet of table that is uppon the top of the tower ['turret' erased], 204 feet do. for the 'turret and tower'.

153 balusters, 15 double balusters, 128 yards of head for the tarris [balustrading] and 128 yards of soyll [sill].

'29 feet of ashlar for the petystall in the top of the turret at the old galary end w^ch^ convey the smok from the lodg chemneys.'

'30 feet of skewes for the buttris within the court.'

[1] Sister of the Countess.

[2] The stonework has disappeared, though the plaster work above remains. See pl. xxxv, fig. 2.

[3] Probably to receive oak plugs for the plasterwork, still *in situ*.

[4] It was recently proposed to drain this room, then full of rubbish, by cutting such a tunnel. Excavation proved it was unnecessary—the tunnel was already there.



Photo: Richard Keene, Derby

Fig. 1. Chimney-piece, 'Fire', in the Chamber over Mr. Wm. Cavendish's Chamber



Photo: Richard Keene, Derby

Fig. 2. Chimney-piece, 'The Winds', in Mr. Digby's (?) Chamber

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Also

'19 feet of moulding stuff that goeth along the pylasters over the other syde of one chymney in the galary at iii^{d} a foot, 18 foot of moulding that goeth betwyne the mantel stone and arkatrave of the same chemney at iv^{d} a foot.' '7 feet of plynth sett under the base of the pyllaster of the same chimney, 1 mantile stone for ye tour in ye steares.'

These items must refer to the north-east portion of the old house, of which only the east wall remains. As there are so few steps for a turret which appears to have gone at least as high as the tower, I presume it was built above an old staircase; the mention of the buttress tends to confirm this and perhaps helps to explain why this portion has entirely disappeared.

Various subsidiary buildings, etc., are dated by the following items:

Jan. 22, 1591–2. Paid to Cordleye for healping at the fishe pooelles a daye and a half iii^{d}

Sep. 22, 1593. Paid to Heath and his fellow in full payment of v^{li} yt the most hav for ye finishing the stable roof iii^{li} v^{s} vii^{d}

Dec. 17. Payd to Edward Worthingtone in full payment of iii^{li} x^{s} that he hath for the slatting of the stable roof xl^{s}

Dec. 23. Payd Edward Worthington for coveryng the partrich house vi^{s} viii^{d}

Feb. 9, 1593–4. Payd to John Batley uppō a Recking of his bargayne for ye Court Wall [1] xxx^{s}

Sep. 7, 1594. P^{d} to Thomas Waryngtone for walling tow roads of Ruff wall for the archard wall at vii^{s} vi^{d} the road ix foot highe xv^{s}

Jan. 8, 1595. Paid to the workmen makinge the pondd at Hardwicke.

May 1, 1596. Payd to Thomas Yealate and Waryington for gronding the foundacion of the gat house [2] eth^{r} of them one day xii^{d}

P^{d} to Nicholas More for making sixe great hochs [3] for the yat house the Iron was my ladys ii^{s} vi^{d}

June 14. Paid to Edward [Worthington] Slatt^{r} for getting slat at Wingfeld for the slaight^{r} house at Hardwick himself xi days iii^{s} viii^{d} and for his bord iii^{s} his man x days for his wadge and bord iii^{s} iiii^{d} x^{s}

July 10. P^{d} to James Adams for hewing xv foots of head soyll and Jalme for (1 dor in ye) ['steylling house' erased] turret in the north archard iiii^{s} iiii^{d} ob.

Pd for hewinge xxxiiii foots of playne watt^{r} table for the turret next to the Kelne Croft iiii^{s} iii^{d}

June 26, 1598. 3000 lats for the banketting house in ye garden.

Mention must not be omitted of a curious piece of work:

Ap. 1, 1594. Deliv^{d} unto Will^{m} Angrome uppon a recconinge for the removeing of Backwell Hall [4] v^{li}

Sep. 15. Payd more unto Angrome for the removeing of Backell Hall . . .

[1] This is the Court Wall of the New Hall, finished by May 18.

[2] Pl. xxxiv, fig. 1.

[3] = hooks, or perhaps a mistake for locks.

[4] Another entry shows it was removed to Shirland.

These sums must have been paid for something more than mere house-breaking. No doubt the hall was of timber; and the timber, though re-used, may not have been used in facsimile; as is suggested by another account:

Oct. 5, 1594. Paid to Gilbert More upon a recking of xiii^{s} he is to have for taking doun and setting up of 6 bays of old housing which was the old plumery and an old lodg wher the masons wrought to be a hay house.

Returning now to the New Hall, it will be advisable to take the various craftsmen separately:

Abraham Smith. His name—at least I presume it is his—first appears in a plasterer's bargain of 1581 (Chatsworth), which I quote in full:

Both hath taken by great the frise and cornish for the four turrets uppō the monte to be cast in such mould as Habraham shal mak for the same he most beat born and sift cast cleanse (for the same moulde) and pfectly set the sayd frese and cornish so wyll and workmanly finish in every respect as shal be well lyked of by yo^{r} lā and to end the same work wthin a fortnight aft^{r} East^{r} next cōing as shalbe in the year of our lord god 1581 and to hav a laborer fond at yo^{r} lā charges of meat and drink for on fortnight and he to hav for the well and workmanly finishing of this his work xxvi^{s} viii^{d} and at the end of the bargayne xxvi^{s} viii in full payment of this bargayn.

The above indicates that he was a master craftsman though probably still a young man, as an item of September 17, 1592, ten years later, runs:

Geven unto Abraham against his weddinge xl^{s}

He appears to have always been employed as a regular servant, paid by the quarter. His name first occurs in full in the list of quarter's wages for Dec. 1590, 'Abram Smith,' although the amount is not entered, as though he had been paid directly by the Countess instead of by the clerk: in another year he receives £3 6*s.* 8*d.* On November 8, 1589, he received 12*d.* for four days' board wages, and on January 5, 1*s.* 10*d.* for a week. He probably came from Ashford, a home of masons, as in 1591 we are told he had 'sundry grounds in Ashford' in lieu of wages. Unfortunately neither Bakewell nor Ashford registers go back so far. He seems to have worked continuously in the Countess's service—at any rate there is no mention of him at Wollaton.

On February 17, 1588-9, there is an item 'for iiii hundreth of iiii^{d} nail for Abram to nayll up peeces of wood in the gallery'—presumably groundwork for plaster, either bracketting as in the frieze of the Hill Great Chamber or small tree stems round which the plaster was modelled as in the Forest work of the East Great Chamber (pl. XXXV, fig. 2).

Ap. 27, 1590. To Stevenson for a hundreth of Iron hucks for abram to sett up his chemeny peeces wthall xvi^{d}



Photo: Richard Keene, Derby

Fig. 1. Chimney-piece, 'Water', in the Inner Chamber to the Corner Chamber over Mr. William Cavendish's Chamber.



Photo: Richard Keene, Derby

Fig. 2. Chimney-piece in Mr. Reason's (?) Chamber

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Many of the chimney-pieces were first cast on a wooden frame which was attached to the walls with hooks, as in the Hall and William Cavendish's Bedchamber (pl. XXXVI). These two items go far towards proving that Abraham was the author of the plaster work in the Old Hall.

Nov. 7, 1590. Pd for halff a thousand of ii[d] nayll for abram to sett cassments x[d]

Nov. 29, 1591. Pd to Henry Nayll for iii days worke yt he was healping to cut the stenes w[th] habraham in measur vii foot and dm at i[d] qr ye foot ix[d]

Mar. 20. Payd for i[c] iiii[d] naylle to naylle up ye panes of the cornish in habrahams chamb[r] iiii[d]

Aug. 21. Payd to Woodhouse for healping Habraham to cut cartoces v days dm at vi[d] a daye ii[s] ix[d]

These are the consoles under the window-sills which Abraham probably designed.

Jan. 15, 1593. Pd to M[r] Hoode for ii Mediæns [1] for Abraham and Wadson v[s]

Mar. 11, 1593–4. Pd to Batleye for hewing stone for the pysing of the comparttyments for habraham i[s] iiii[d]

May 20. Paid for hewing tow stones for ye hall chemney for Abrahams work ii[s]

If this is the chimney-piece in the hall of the new house there was further work done on it.

Feb. 24, 1594–5. Pd to Cutbeard for hewing threcy stones for habraham for tearnes ii[s]

Pd to Henry Nayll for scapling tenne stones for habrahams work and healping Accres to bost tow days xiii[s] viii[d]

These items refer to the Coat of Arms. Thomas Accres made one for the west side of the new building, Abraham Smith one for the east. When the work of repair began at Hardwick in 1911 the former had entirely disappeared, while the latter was lying in scattered fragments on the roof, but photographs existed showing it in position. We were able to find the whole of it except the bodies of the two stags (supporters) which were replaced with new stone; but it was re-erected on the entrance (west) instead of the east front (pl. XXXV, fig. 1).

Mar. 20, 1595–6. Paid to [John Batley] for shutting 20 yardes of wall by the great chamb[r] dor whear habraham mad the pyck.

'Pyck' may be an abbreviation for picture and refer to one of the heads by the 'Low Great Chamber' (Dining Room), but more probably to the plaster-work in the 'High Great Chamber' (Presence Chamber). The scaffold for this work was erected in August, 1595, and his plasterwork would be well in hand by the following March (pl. XXXVII).

[1] What can these be?

Abraham is the most gifted of the workmen at Hardwick. An all-round craftsman, equally at home at masonry and plasterwork, and apparently a carpenter as well; an adept at small intricate strapwork designs like the headpiece of the hall chimney and yet capable of carving on a bold scale like the Coat of Arms, he is a typical figure of the Renaissance. But it is in plasterwork that he excels; and though his work is curiously unequal, the design frequently overloaded like the hall overmantel in the New Hall, and the figures ill proportioned, they are usually full of vigour and at times admirable in design. Indeed, with the small opportunities of study such a man would have, it is surprising that his nude figure work (e.g. the Venus in the Hill Great Chamber) is so good. He is at his best in the series of allegorical figures, Fire, Wind, and Water,[1] in the bedrooms of the Old Hall. The Spirits of the Winds have a touch of humour which comes out more broadly in the stone Caryatids of the Countess's Bedchamber in the New Hall. Usually his subjects are taken from classical mythology though accompanied with native scenery and architecture.[2] In the 'Corner Chamber next the Court' the subject is a castle—possibly Bolsover as then existing.[3]

Thomas Accres, marble mason. We first find Accres at Chatsworth Feb. 4, 1576, his wages being 5*d.* a day. This would include board, wages being usually double without. At Wollaton we find 'Akers' getting 14*d.* a day, and later at the same place (Nov., 1584) 'To Thomas Acres in preste for his quarters wages £4'.

His name does not appear at Hardwick till August, 1594, 'geven to a boy that brought a lre from Agars the mason 12*d.*'—no doubt a negotiation for his services. In April, 1595, he was cutting the second Coat of Arms to which I have just referred, being employed by the quarter at £3 6*s.* 8*d.*:

Ap. 7. Pd to Nayll and malary scapling ix stones for Accres for one payere of Armes and healping him to bost one day xvii[s]

But he was mainly employed on marble work, and there are some interesting references to his sawing machinery, etc.

June 16, 1595. Pd for all ironworke yt was wrought at Wingfeld for the blakstone sawing at the walke mylne v[s]

The Countess's ironworks were at Wingfield, but the Walke Mylne seems to have been at Chatsworth. The blackstone came from Ashford, the alabaster from Tutbury:

July 26, 1596. Paid to Thos Accres . . . for his charge to Tutbury xxi[d] and for showing

[1] Pl. xxxviii, xxxix, fig. 1. [2] Pl. xxxix, fig. 2, xl, xli, fig. 1. [3] Pl. xli, fig. 2.



Photo: Richard Keene, Derby

CHIMNEY-PIECE IN THE NURSERY

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his horse iii[d] his charges and his mans at Ashford iii[s] iiii[d] for ye chosing of blakstone.

Oct. 15, 1594. Paid to one Swyndell for on nights grasse for the oxen when he brought blackstone from Chac and was letted with the wat[r].

Jun. 10, 1598. Payed for xxv foote of alowblaster to Creswell Boylsones servant at xiiii[s] the tunn xix[s] x[d]

Sep. 22, 1595. Paid for setting of tow new sawers and making eight handles for saw sawers to saw blakstone xviii[d]

Paid for making 4 slypes to set on ether syd of ye fend[rs] yt the saws go in ii[d]

Paid for making of ii bares ii foot and a half long for strengthening the same frames.

May 9, 1596. Geven the x[th] of Maie unto Acres wyffe in respect of her husbands devise of sawing of blackstone to buy her a gowne withal xl[s]

Nov. 7, 1596. Paid to one that brought an Iron sawe for Acres ii[d]

Paid to Thōs Astley uppon a recking for vi tun of Allablaster paid by him v[s] iiii[d] the rest being set down in his account xxxv[s] ii[d]

May 30, 1596. Paid to Lovells wyffe x[s] uppon a recking of her pollissing of stone and geven to Lovell his wyffe x[s]

May 3, 1596. ii stone of chalke for Thos Accres to pullish blakstone.

June 14. ii[li] Rosyne for Accres iiii[d] half l[i] wax vi[d] ['symand' inserted] for leather to polish blakstone with iiii[d] and for a fylle to wheit the blakstone saw iiii[d].

Jan. 10, 1596–7. Paid for one pond of stuff for Accres to gloze blackstone xvi[s] [this material apparently kept secret] one pond of Rawsine ii[d] half a pond of wax vi[d] and bather to gloze blakstone iiii[d].

Paid for pesing the (blackstone) (alablaster) alabbastr sawe vi[d]

June 25, 1597. Paid for hewing the dor that goeth into the turret[1] where Accres lyeth iii[s] iiii[d]

On April 13, 1595, he and Abraham went to Chatsworth, probably to see about getting blackstone, but the item September 25, 1597, 'for carriage of a tun of Allablastr to Wingfeld v[s] 6[d],' probably indicates the time at which he panelled in marble the room over the buttery there.

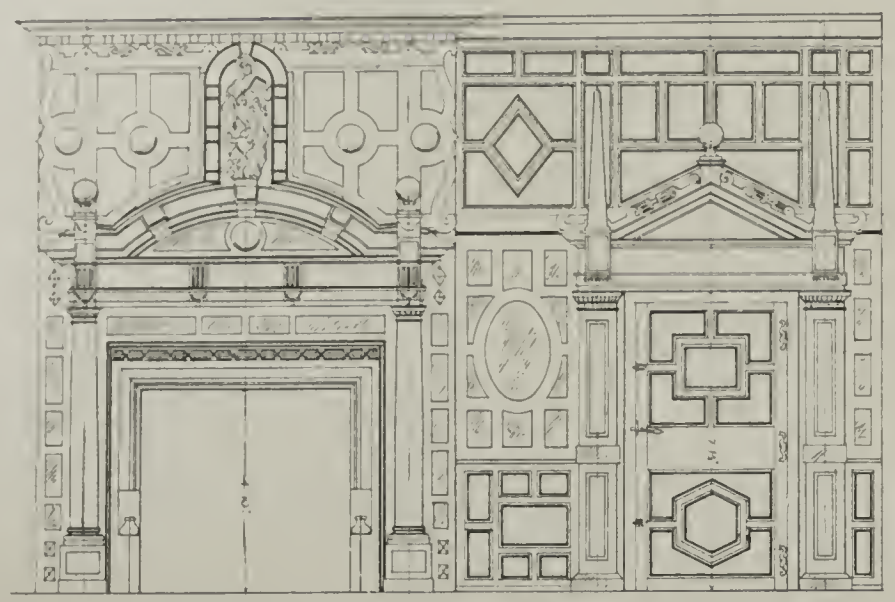
July, 1598. Paid to Naylle for helping Mallery with Accarse his worke in the best bedchamber fore days and a hauffe at vi[d] the day ii[s] iii[d]

The drawing of this fireplace gives the detail, which, as before mentioned, shows a reminiscence of Wollaton.[2] The photographs of the chimney-pieces in the Ship Bedchamber and the Long Gallery[3] show his skill in figure carving. The figures are graceful and the drapery modelled on Italian work: Justice—her sword has disappeared—looks like a portrait of the Countess. Unfortunately he has the common fault of his time—lack of simplicity. The fireplace in the High Great Chamber is less pretentious, and therefore more successful (pl. XLIV, fig. 1).

[1] He was evidently sleeping in an unfinished roof turret – uncomfortable quarters even in June.

[2] Fig. 4. [3] Pl. xliii.

CHIMNEYPIECE & DOOR IN THE BEST BEDCHAMBER HARDWICK

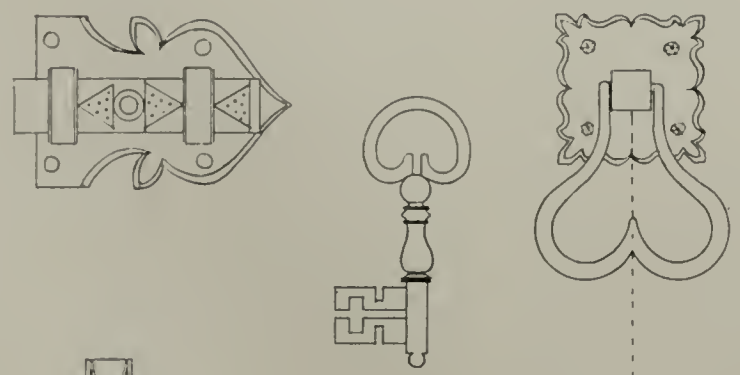


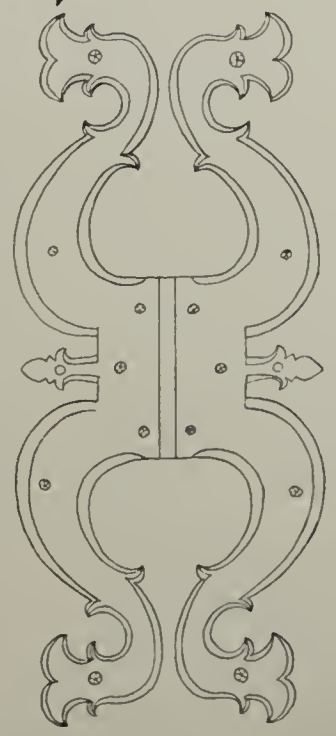


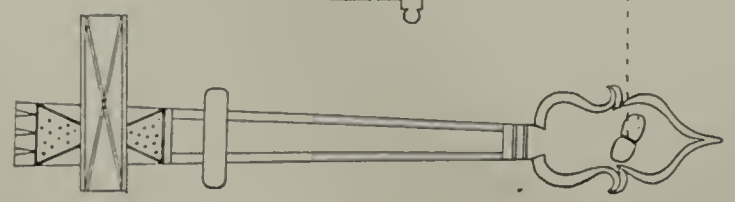


Plan

Scale of 0 1 2 3 4 5 6 7 8 9 10 11 12 feet







Ironwork on Door

Scale of 1 2 3 4 5 6 Inches

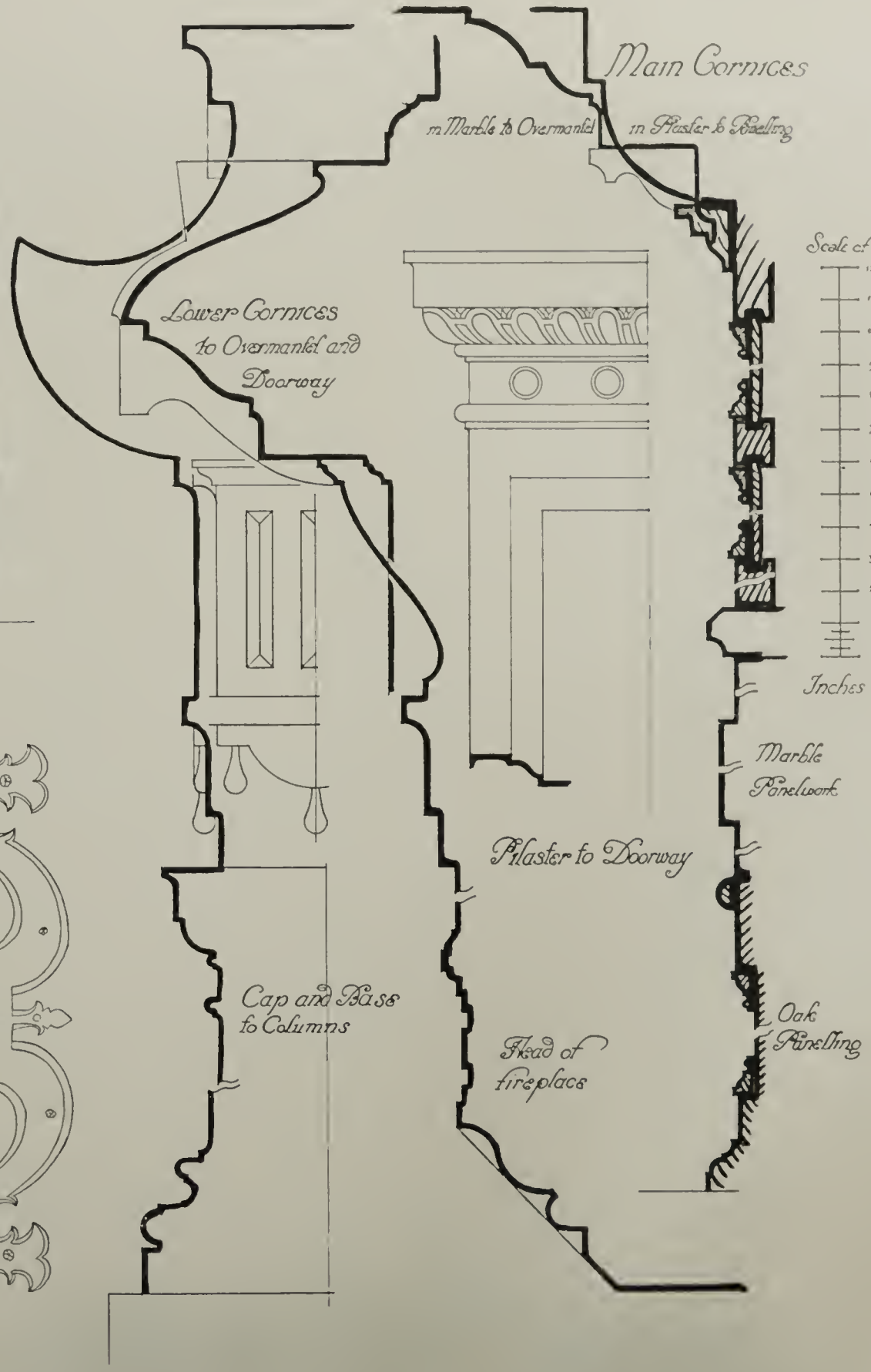


Fig. 4. Details of Chimney-piece, etc.; Hardwick.



Photo: Richard Keene, Derby

Fig. 1. Chimney-piece in Hill Great Chamber



Photo: Richard Keene, Derby

Fig. 2. Chimney-piece in the Corner Chamber next the Court

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Accres had two apprentices—Lawrence Dolphin and Miles Padly:

Feb. 24, 1595. Pd for xxxi hard stone chesells and a Kevel for Myles Padly yo^{r} ho^{r}s apprentic iiii^{s} p^{d} for shapping i^{c} [100] poynts for him xii^{d}

Another item must be given:

Dec. 1595. Geven to S^{r} Harry Jenkinson to give to Grace Accars v^{li} and geven to Accarses daughter at her marriage xx^{s}

Besides Accres another marble mason was employed for a short time:

Nov. 3, 1594. Geven to one Gyfford that works in blackstone ii^{s} vi^{d}.
Oct. 19, 1594. Paid to Thomas Gyfford the mason on a reckg of iiii^{li} he is to have on a bargain for ye doing of my Lady warwiecks worke.

What this work was I have not been able to discover. It may have been work of which the design was made or lent by Lady Warwick, more probably an inlaid marble table to be given her.

John Marker, a plasterer, employed for many years in the Old and New Halls, but generally on plain work. It was he, however, who executed the ceiling and cornice in the Long Gallery.

May 19, 1595. Paid for three hundreth and a half of viii^{d} nayl for Marker to nayl up braddets[1] for his cornish in y^{r} galary ii^{s} iiii^{d}

Another item is interesting, while the last I cannot explain, as nothing of the sort now exists there:

Feb. 21, 1596–7. Geven to John Marker for waytting at the Arll of Shrouesburyes being here one day and a half ix^{d}
Mar. 24, 1594–5. Paid for one hundreth of iiii^{d} nayl for Marker to sett up the cornish paynes over the pantry.

Of the joiners we have already noticed *Sedgefield* at Chatsworth. *William Bromley* is the most prominent at Hardwick. His name first appears on Nov. 21, 1590; in July, 1592, he is described as seiling (wainscotting) the Great Chamber in the Old Hall—probably the Hill Great Chamber, as the Forest Great Chamber was hung, not panelled. He was employed by the day at a wage of 4*d.* (i.e. with board, 8*d.* being the equivalent without). He was often employed too at making or mending furniture:

Aug. 21, 1592. Paid to Bromley the joiner for making a cubbord and pycing the long tables in the Great Chamber v dayes xx^{d}
Jan. 21, 1592. Paid to Bromley tourning balusters iiii dayes i^{s} iiii^{d}
July 15, 1594. Paid to Bromley for making a casment in the gentlewomans chamb^{r} vi^{d}
Pd to him for bothinning [? bottoming] a trunk xii^{d}
Paid to Bromley and his son for ether of them iii dayes mending things in the house at iiii^{d} a day a pes ii^{s}

[1] Brackets.

Dec. 13, 1595. Paid to Bromley the joiner on a recking of his bargayn off sylling the Square Great Chamber in the new house and the east great chamber in the old house x^{li} 'with mytr sypher and revral' is added, and also 'Bromley is to mak an end of the East great chamb^{r} in the old house by Candlemas and the square great chamb^{r} in the new house by the xxvth of march next'.

Builders apparently have always been the same—he did not finish till May 29, when he was paid as follows:

To W^{m} Bramley the joiner in full payment of his bargayn of sylling the square great chamb^{r} in the new house and the east great chamb^{r} in the old house viz the great chamber in the old house 56½ yds at i^{s} viii^{d}—iiii^{li} xiv^{s} ii^{d}, 40 yds of cornish in the same chambr at iiii^{d}, xiii^{s} iiii^{d}—v^{li} vii^{s} vi^{d}; and for the square great chamb^{r} in the new house 107 yards at i^{s} viii^{d}—viii^{li} xviii^{s} iiii^{d}.

William Bromley had a son, Henry Bromley, whose name appears in an account book of 1599:

Sept. To Henry Bromley in making formes for the halle xii dayes vi^{s}

Oct. to Bromly xi dayes about a bord^{r} [1] in the (forrest) great chamb^{r} and beginning a newe in the hill chamb^{r} v^{s} vi^{d}

Nov. To Henry Bromley for xii dayes wage in working a table for the hill great chamb^{r}.

To his man for xviii dayes at iiii^{d} a day for mending the twisting [? spinning] wheele.

Dec. To Henry Bromley for xii days in making a square table for stone.

To Bromley for aleaven dayes worke aboute the frame for the stone tabull at vi the daye v^{s}

Jan. 1599–1600. Payd to ye Joyner for a little cheare for James [2] xii^{d} and a little stole for him xii^{d}.

Payd to ye joyner for a hye stole for my lā chamb^{r}.

Ap. 1600. To Bramley for a fortnights worke where of he was three days in taking doune the wendows by the gallery dore and the reste about the square table done with marble and blakstone vi^{s}

At Hardwick there is the usual legend of foreign artificers, who, Harrison says in no very complimentary way, were employed for cheapness. So far the names have been unmistakably English, but we now come to one whose surname is more uncertain: called *John 'Painter'*, it is perhaps possible that Painter represented something unpronounceable. But there is another possibility—that his name was Kniveton and that he was called Painter to distinguish him from the other Knivetons, who resided with the Countess. His name first occurs in the Chatsworth wage-book:

May 24, 1578. Itm payd for tow ounces of safrone for Jhon Paynt^{r} vi^{s} iiii^{d} and for towe pound of yelow occre for Richard Paynt^{r} vi^{d}.

[1] Curb.

[2] James was the child of William Cavendish, afterwards first Earl of Devonshire, whom his grandmother calls her 'juyll'.



Photo: Richard Keene, Derby

Fig. 1. Chimney-piece in the Inner Chamber to the Corner Chamber next the Court



Photo: Richard Keene, Derby

Fig. 2. Chimney-piece in the Little Gallery

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But on May 29, 1579, we find 'Itm payd for a brush for Jhon Kniveton xii^{d}, and June 20, 'Itm payd to Francis Glasyer for seavene days working with Jhon Kniveton about glassing of the turrit at the Bridg End iii^{s} vi^{d}'—but this name does not occur again. Are not the two the same? He occupied a prominent position, exercising, besides his painting craft, duties similar to a manager's.

Nov. 22, 1592. Paid to Beighton for sawing 320 foot of bord iiii^{s} ix^{d} Jone pantner and Davy [the Clerk of Works] have theyse bordes.

Sep. 30, 1592. Paid to W^{m} Bromley in full payment for seyling the low great chamber 117 yardes at xx^{d}—ix^{li} xv^{s} whearof he hath rec^{d} of John Paynter in tymb^{r} xl^{s} and of me vi^{li} in the whole viii^{li}, and so now in full payment i^{li} xv^{s}

October, 1593. After a note that 'Sr Henry hath in his hands for Snydall when he hath ꝑfectly finished that casments yt are to be ꝑfeitly and duly done of his bargayne four pound sixtyne shyllinges viii^{d}', there is a PS. 'John Paynt^{r} hath it'.

Jan. 22, 1596. Paid for hewing 30 balusters, 153 balusters—S^{r} Henry sayth John Paynt^{r} thinks about x mor will serve.

Feb. 27, 1597. Geven to John Painter's wyffe when she was robbed xx^{s}

Oct. 23, 1597. Geven onto John Paynter x^{li}

This was immediately after the Countess's removal into the new house and reflects her satisfaction. But Painter was often the recipient of large gifts:

July, 1598. Geven to John Paynter for working of Mydsomer day ii^{s} vi^{d} and to his sone James vi^{d}.

April, 1598. Geven to John Paynter for his going to Darbye about the Alms house xx^{s}

April, 1600. Geven to John Paynter for hys being at Darbye over and above xx^{s} geven him before when he paynted my armes xx^{s}

Some of his bills are interesting. Items of 'glovers patches' for size and 'schalk' for whitening are frequent. Here are some of his colour accounts:

June 26, 1596. bowght at London

iiii gallons linseed oil at iiii^{d}	i^{s} iiii^{d}
xii pound whit varnish at x^{d}	x^{s}
one pound and a half blewe bise	i^{li}
iiii ons cynip lake	x^{s}
a runlet to put the oyll in	i^{s}

May 29, 1598. Paid for a pounde goumde ('for the galary' inserted) for John Paynter.

Oct. 16, 1597. Paid for thre hundreth of gould to guyld wthall x^{s}

Paid for stuff for John Paynter to mend the hangings and other things wthall viz 1½ lb gume ii^{s} 2 lbs coperons xxii^{d} for 2^{li} of galles ii^{s} 3^{lb} of Allome xii^{d} ½ lb madder v^{d} 1 lb of blockwood viii^{d} 1 lb fustick iiii^{d} 6 yards of canvas to lyne theme wthal at vi^{d} thread to sowe wthall iii^{d}.

Dec. 13. Oylle, Vernisshe and other collers bought for Jo Paynt[r] — Paid for iiii[li] vermilion at iii[s] iiii[d] a pounde xiii[s] iiii[d], iiii[li] of masticotte at ii[s] a l[i] viii[s], x[li] of verdigrease at iii[s] a lb xxx[s], ix[li] of vernisshe at x[d] qr l[i] vii[s] vi[d] and for viii gallons of lynseed oyle at ii[s] viii[d] ye gall xxi[s] iiii[d] and for a runlet for ye oyle xii[d] and for a barrell for ye vernisshe vi[d]—iiii[li] i[s] viii[d].

Feb. 1599. For xvi pounde of white lead for John Paynter for the great chamber iiii[s].
for too stone of chauke for John Paynter xvi[d].
for too pownde of varnishe for ye seeling (i.e. waynscotting) in ye high great chamb[r].
for too pounde of lambe black for the saide seeling iii[s] iiii[d].
for too pounde of yellow Oker for the said seeling iiii[d].
for too hundreth of paynting gold xii[s].

Sep. 1599. Paid for a pound of red lead for John Paynter iii[d] for a pounde of yelloe oker iii[d].
Paid for vi pound of varnyshe bought at Nottingham at xvi[d] the pounde.

Mar. 1600. Paid for too pounde verdegrease for John Paynter vi[s] viii[d].

1599–1600. Paynting stuff for John Paynter.

for stayning the cloth hanging.

a pounde of fernando bark	xii[d]
a pounde of brasill	xii[d]
a pounde of blockwood	xvi[d]
a pounde of allome	iii[d]
a pounde of fusticke	x[d]
a pounde of coppris	ii[d]
a pounde of gumme	xvi[d]
too pounde of glewe	xvii[d]

John Painter succeeded best as a decorator, as in the painted frieze in the Long Gallery and the imitation-inlay patterns on the panelling in this and other rooms.[1] But the painting of the modelled frieze in the High Great Chamber[2] is crude, though some of the animals on the plain surfaces are drawn with vigour. The portraits in oil of classical worthies on the panelling below, surrounding a series of German prints on paper,[3] are, however, exceedingly jejune.

The 'Almshouses' at Derby spoken of above are the Countess's last building—behind Holy Trinity Church. The present building probably dates from the first Duke's time. Some of the items referring to it are interesting:

Paid for v[c] of brick for the backe of the chymneys xii[s] vi[d].
Itm for making the bands for the dores yt came from Hardwick fitt for the hookes and for pikking and peising some of them ii[s] iv[d].

[1] Pl. xliv, fig. 2.

[2] Pl. xxxvii.

[3] These prints were also used to decorate furniture. May we surmise that the 'curious portraits' which Faulkner mentions as having existed on the panelling in Shrewsbury House, Chelsea, were of this nature?



Photo: Richard Keene, Derby

Fig. 1. Chimney-piece in the Ship Bedchamber



Photo: Richard Keene, Derby

Fig. 2. Chimney-piece in the Long Gallery

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Some of the last items in the Countess's accounts refer to the foundations for her tomb in Holy Trinity Church, of which I show an illustration (pl. XLV, fig. 1). It may be the work of Accres, but is more probably of considerably later date, as the inscription undoubtedly is: there is little similarity to his work in the detail. The drawing of it in the Smythson Collection (pl. XLV, fig. 2) should be compared with the executed work shown in the photograph.

A few other matters must now be referred to:

Scaffolding. The glazier used a cradle [Ap. 22, 1594. Paid to Mylington for making a cradle for the glasyer 8^{d}], but most of the scaffolding would be of a much more ancient type, the putlogs being built in as the work proceeded, unsupported by uprights. In the Old Hall I found many of the ends still in the wall, three to four inches in diameter and apparently of birchwood. There are nowhere any accounts for boards, but there are numerous accounts for 'fleaks', thus:

Sep. 8, 1595. Paid for making vi dozen fleaks for the scaffold vii^{s} vi^{d}

A 'fleak' in modern Derbyshire dialect means a hurdle[1]: the use of hurdles in place of the boards used in modern scaffolds was common in the time when Hardwick was built, and throughout the middle ages. It must be remembered that heavy materials were deposited on the wall itself, which, being a yard wide, gave ample room.

There are numerous accounts for scaffolding nails, but ropes were not used for tieing the scaffold, as would appear to have been the case at Wollaton; there is an occasional purchase of a 'great gabull rope' evidently for hauling up the great oak beams which in some cases weighed four or five tons.

Aug. 13, 1593. Paid for ropes for Yats to draw up timb^{r} according to my promise xlvi^{s} viii^{d}

'Wiskets' are frequently mentioned: they are wicker baskets used for carrying mortar and other material. In the contemporary tapestry 'The Building of the Altar' (pl. XLVI), from the Story of Gideon in the Long Gallery, troughs probably made of boards (i.e. hods without shafts) are seen employed for this purpose, while the tub on the altar may have held water.

Another article, 'kids', is of frequent occurrence, thus:

Ap. 8, 1592. Paid for making 300 kids for ye bachouse.
Nov. 13, 1598. Paid for making 200 brome kids for thatching wthall xii^{d}.

A 'kid' now means a firelighter; it was then equivalent to the Wiltshire word 'babbin', a large bundle of sticks used for firing bread ovens. For burning lime both wood and coal seem to have been used. The limestone was brought to Hardwick from Skegby or elsewhere in the neighbourhood and burnt on the ground

[1] Dorset 'flock'.

in front of the north orchard—the 'kelne croft'. The breaking of the stone was let by the piece—7*s.* for a 'great' kiln, 5*s.* for a little kiln. Special white lime used for whitewashing came, apparently ready burnt, from Crich, there being large lime kilns in the neighbourhood to-day.

Ap. 19, 1596. Payd for one horse load of Crich lyme to whyte with vi[d]

All the materials, in fact, were local. The timber was cut at Heath, at Teversall, at Pentridge, and Crich Chase, and the preparations were on a large scale. At the latter places the supervision fell to the bayliff of Wingfield, and some of his accounts are interesting:

May 21, 1593. Paid to Baylye Allwood to pay for ropes, mending waynes in Chāc and rearing lead bords as appears by his bill/ new ropes broke rearing of lead bords/ xxx[s] viii[d]

Paid to him mor to pay 2 waynmen that go with the draught at Manore xi[s] viii[d]

June 4. Paid to the Smyth of Wingfield making and mending things for cartwaynes, shewing 6 oxen over and besides his sons bargain shewing the 5 draught and other as appears by his bill (see M[r] Kyndslys bill for this) xiv[s] ii[d]

The stone was all quarried just below the stables by one Robert Holm, who with the help of a labourer or two seems to have got out the whole of the stone for both the Old and New Halls. It is a fine-grained sandstone and would have lasted very well if it had been laid on its natural bed, but in this respect the work was jerried. A special firestone was obtained from Sutton for the ovens and New Hall chimneys, but it has withstood the Hardwick atmosphere badly.

May 2, 1596. Paid for a lood of firestone got at Sutton for the chemney in the Gate-house ii[s]

Here a cart must have been employed, but most of the stone was borne by pack-horses, and there are many accounts referring to them:

Feb. 15, 1593.	Paid for nails to mend pack saddles	i[d]
	,, four new pack saddle tryes (trees)	iii[s] iv[d]
	,, pack thread to mak ye panells	i[d]
	,, one dozen ropes for ye ston horses	i[s]
	,, seven yards of seking to panell sadles	ii[s] xi[d]
	,, shewing 6 horses	iv[s]
	,, making a drudg to lead stone upon	i[s]

Lead was obtained from Barley, where the Countess had her own mines. She appears to have handed over the management to her son William, and there are several references to them in his accounts:

Aug. 13, 1597. Launts charg in going to buy wood for the smelting house being forth ii dayes ii[s] x[d]

16. Spent by Launt levelling the groundes for the lead milne at Barley xii[d]



Photo: Richard Keene, Derby

Fig. 1. Chimney-piece in the High Great Chamber



Photo: Richard Keene, Derby

Fig. 2. Door of 'Mary Queen of Scots' Room

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The pig-lead was carried by land to Bawtry and then down the river to Hull, and so by sea to London:

Dec. 1597. Paid for the fraught of on hondreth and fiftye peees of lead of the Nightingale v^li v^s out of the Centurion of Kedbye v^s v^d Swane of Hull 120 peees iiii^li iiii^s Margret of Rochester iiii^li iiii^s Henry of Hull iiii^li iiii^s John of London 100 peees iii^li 10^s.

Ap. 1—Dec. 31, 1597. Delivd by me Will^m Cavendishe to Will^m Lawnte towards the use of the leadworks £2470 10 0

—that is, nearly £40,000 present value, showing that the works were on a considerable scale.

The Countess also had her own iron mine at Wingfield, to which we have already had references. It was worked by Thurstane Radford, probably a blacksmith like other members of the family, who are mentioned as making pulleys, etc. The accounts are signed by Roger Fretwell, and the output was about 10 tons a month at a rate of £4 3*s.* 6*d.*

Dec. 23, 1592. Pd to Kinnersley to be laid out about the Ironworks xiv^li i^s x^d Wages paid to Thurstone Redford, his sons George and Peter, and Sylvester Smith.

Glass seems also to have been made there.

1593. Rec^d of Thurstan Radford the same daie in pt of payment for viii case of glasse that was sent to Guisboro by Nicholas Kindersley viii^li.

The marble and alabaster, we have seen, were local—even furniture and iron were locally made. But a certain partition is mentioned as coming from London:

[1596-7]. Paid the x^th of June for the carriadge of a frame of woode for the ptician of a chamb^r that was sent from London by S^r Charles xiiii^s.

This may be the Chapel screen; but it is more probably the partition, in the room now called Queen Mary's Room, consisting of a window and a door surmounted with the Queen's arms carved in wood and a French inscription (pl. XLIV, fig. 2). Though it is certain that she never slept here, and though the panelling is dated 1599, it has been supposed that these fittings may have been removed from some house where she did. The account suggests that it is what we may call a fake.

Another account which may upset another tradition occurs on July 15, 1596:

Given the 15^th of July at yr la^pp going to Monsaldale amongst ringers in Longston . . . amongst poore at Scoldon Lees . . . and deliv^d unto M^r Henry Cavendish to give amongst fishers minstrels and those that built the bower there xx^s and geven unto him and his lā at ther going frome Chatsworth xx^li.

'There' is not very definite; if it refers to Chatsworth and 'Queen Mary's' Bower, it dates the Bower too late for the traditional connexion with Queen Mary.

A final word about the form of the accounts. A list of the manuscripts is given in the Appendix. They are written on paper bought locally and stitched together, but only three of the leather bindings are contemporary. In the building accounts there are separate books for the wages of the datal men and for bargains-in-great of (1) masons, (2) wallers, (3) other crafts, which are sometimes further separated.

The datal accounts begin weekly on July 24, 1587, but after June 24, 1588, the wages are reckoned fortnightly. The men are classed 'massons', 'wallers', 'carpenters', 'stonebreakers and laborers', 'hand beners[1]'. Opposite each name are open circles, half-blacked circles, or blacked circles representing a day's work, a half-day's work, or an absence, followed by the total wage in Roman numerals. There are no ruled columns, so that the summing is awkward. A rough summary is often indicated by a code of dots, and then the sum for the week (or fortnight) is written in Roman numerals again. Finally, the sum is written in words in the Countess's own hand and signed 'E. Shrouesbury'. The bargains-in-great are written in paragraphs, so that the sums are not even below each other.

In the Wollaton accounts the datal wages are similarly kept, but there are ruled columns including an extra one for the wage rate, which is usually double the Hardwick rate, showing that the men were not boarded—a difference due to its situation adjacent to a village, and not far from a town. The sums are again in Roman numerals.

William Cavendish's accounts are much more methodical—there is a ruled column for each cipher, i.e. 2 for the pence, 2 for the shillings, and 4 for the pounds. The sums are in Arabic numerals. Unfortunately the building payments for Oldcotes are merely summarized in his manuscript, e.g. 'payd for buildings at Oldcotes for six weeks ended ye last of April as may apere by my brief book of buildings ther'; and this brief book does not survive. Incidentally it may be mentioned that the tradition of the Countess's death synchronizing with heavy frost which stopped the work at Oldcotes can have no foundation. The Countess died in 1607, but in March, 1599, there is an account:

Geven to my sonne Willyam a hundreth pounds for the full fenishing of Oulecotes c^{li}.

The Hardwick building accounts contain many items that have little to do with the buildings, while many of the building items have to be extracted from general account books. For a short period (Mar. 16, 1589-90 to Aug. 29, 1590) there is added at the end of the datal men's wages each fortnight a list of men, followed by a list of the days of the week, with figures in Arabic numerals opposite headed 'beners', and then a short statement about the provisions. The numbers

[1] This word was originally equivalent to 'taskmen', but by this time it can have meant little more than tenant-labourers, as all are paid.



Photo: Richard Keene, Derby

Fig. 1. The Countess of Shrewsbury's Tomb, Holy Trinity, Derby

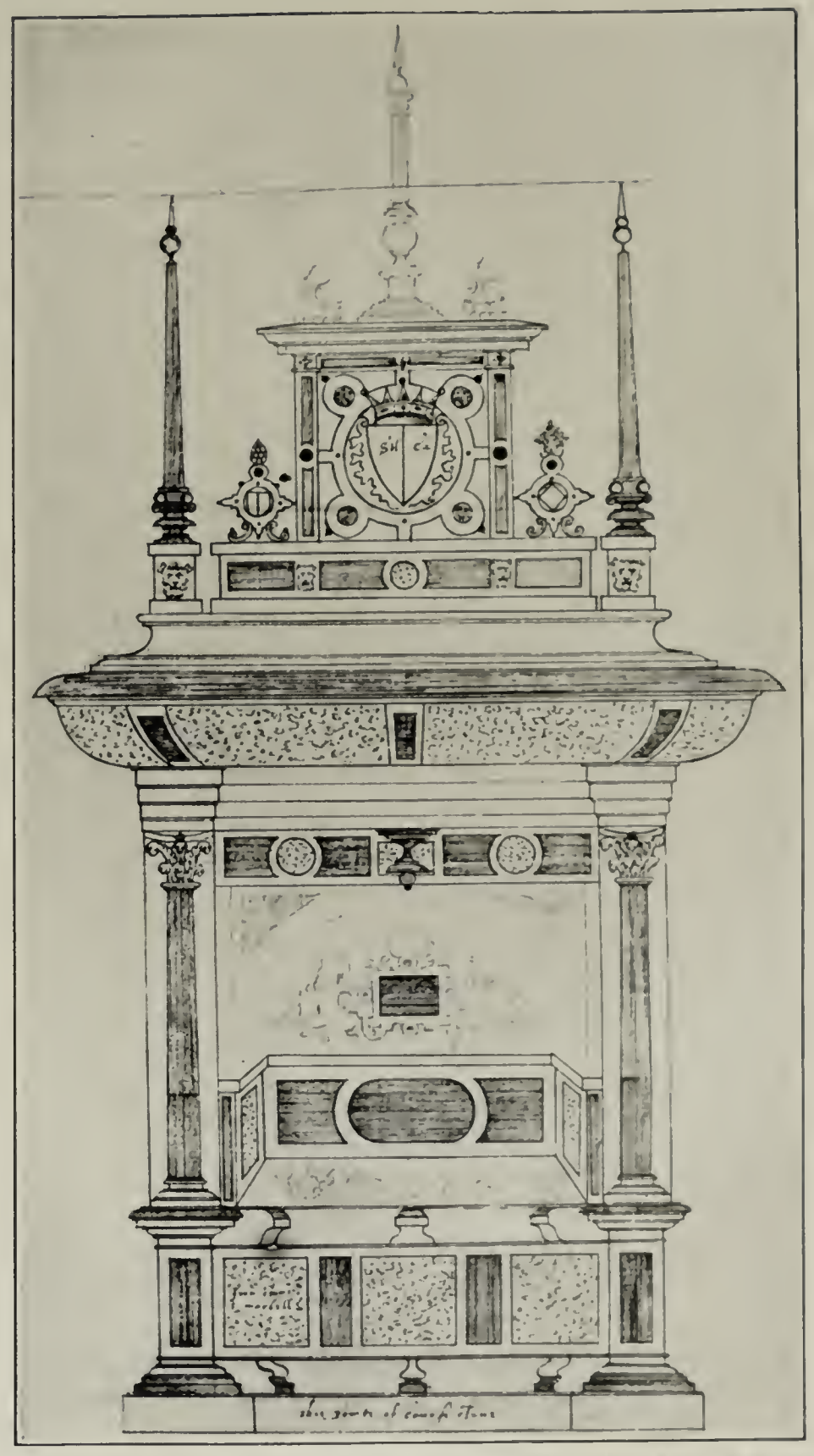


Photo: Chas. Speight, Kettering

Fig. 2. Design for the Countess of Shrewsbury's Tomb, Smythson Collection

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appear to represent the attendance at each meal, but they vary greatly from day to day:

May 25, 1590. Holand Edensor d'd to Isabell the last of May 8 strick of oats and
Tomson Smith dredge, on strick of pease w^ch^ made 21 cast of
Harry Isabell bread spent 11 cast 10 remayning.[1]
Matthew

	Beners.	
M.	4	6
T.	5	8
W.	2	2
Th.	0	3
F.	16	24
S.	0	0

in the wholl 2 scor 14 for on meal.

The Countess appears to have examined the accounts very thoroughly, and her comments often enliven a dull page. Thus an item is crossed out and opposite, in the Countess's bold hand, is written 'pott out by me'. Three of her remarks I cannot refrain from quoting as a tailpiece to these accounts, depicting both the liberality and the cold precision which joined in her character:

May 1595. Because the walles ryse and be not well nor all of one collore the most be wheyted at the plasterers charge.

Jan. 1599. Geven to George Knyveton not in respect of his services but for his mothers sake over and above his wage at his go—

Evidently the clerk was about to write 'going' but the Countess had it altered to 'my putting him away'—xl^li^ (about £600). George Kniveton was her nephew and must have been serving as her page.

Oct. 17, 1600. Geven to Gurney [a tirewoman] at her going away not for good service but for charetye foretye shellings xl^s^.

The author wishes to record his obligation to His Grace the Duke of Devonshire and to the Right Hon. Viscount Middleton for permission to inspect the MSS. at Hardwick and Wollaton.

[1] Harrison's words are a caustic comment on this: 'The gentility commonly provide themselves sufficiently of wheat for their own tables whilst their household and poor neighbours in some shires are forced to content themselves with Rye or Barley yea and in time of dearth many with bread made either of beans, pease or oats of which scourge the poorest do soonest taste, sith they are least able to provide themselves of better.'

APPENDIX I

List of Manuscripts consulted.

(The numbering is that of the Historical MSS. Commission.)

MS. 1. General account book of moneys paid (probably by Francis Wytfeld) on behalf of Sir W. Cavendish, Nov. 5, 5 Ed. VI—Mar. 31, 6 Ed. VI (1551–2).

2. Account book entitled 'The book of payments for (agricultural and building) work donne begynīg viii of octobre in p^{r}mo anno Elyzabeth (Oct. 1559—Oct. 1560)'.

3. Household account book 'sum of moneys disbursed sens my ladis setting forth from Chatesworth', Aug. 20, 1558—Mar. 1, 1559.

4. Wage book of workmen and servants, Jan. 7, 1576—Dec. 24, 1580 (Chatsworth).

5. Receipts and payments made by Elizabeth of Shrewsbury, partly in her handwriting, partly in Steward's, Oct. 12, 12 Eliz.—July 15, 26 Eliz. [1579–84].

6. Building accounts for Hardwick (several books bound together), 1587–99.

7. Account book of Elizabeth of Shrewsbury, 1591–97.

8. Book of accounts of moneys paid by Elizabeth of Shrewsbury to her House Stewards, 1592–6, mostly in her own hand.

9. Miscellaneous receipts of Elizabeth of Shrewsbury, 1593–1605, being accounts of moneys received from Wm. Reason, her steward, and other servants and tenants.

10. 'Book of Recettes' for the year 1594, end receipt signed by Elizabeth of Shrewsbury.

10 a. Book of accounts for 1597–8, each page examined by W. Cavendish.

12. 'Rent Roulle of Jas. Hardwycke esquyer of hys Revenewes dewe to hym at the annunciation of our ladye in the twelfth yeare of Queen Elizabeth and Saynt Mychael following for one whole yeare.'

Sir William St. Loe's replications to his brother's charges.

Inventory of Hardwick Old and New Halls.

Fragment of Chatsworth Inventory.

APPENDIX II

List of Rooms from the Inventories.

Chatsworth Inventory (*fragmentary*):

The Chambre att the sellor dore.
The Cook's chambre.
The next chambre.
The Nursry.
The dayhouse.
The porters lodge.
The chambre next the chapell.
The next chambre.
The next chambre.
Fyve bedd chambre.
The Inner chambre.
The (old) porter lodge.
The under towre.
The cloke chambre.
The brewhouse.
The Red chambre.
The Chambre.
The Noblemās beddechaber.
Ye nobleās maid chaber.
The Stowll hous.
The chaber nex^{t} the noblemans maid-chaber.



Photo: Richard Keene, Derby

TAPESTRY IN THE LONG GALLERY: GIDEON BUILDING THE ALTAR

OF THE
UNIVERSITY OF ILLINOIS

Ye chaple chāber.
The sarvetts chāber.
The undr gaytt hous.
Ye servands chāber.
M^s^ Leche chāber.
The blue chāber.
Ye purple bedd chāber.
The servands chāber.
The hye gaytt hous.
Ye grett chamber over the pantre.

Hardwick Old Hall :

The wardrob.
The utter roome to the wardrob.
The lowe wardrōb.
The chamber at the lowe wardrob dore.
The chamber at the Great Fforest chamber dore.
The utter room there.
(Half-pace) at my Ladies withdrawing chamber dore.
The great half pace next above that.
The gentlewomens chamber; and closet within.
The Prodigall chamber; and pallet there.
The Fforest great chamber.
Chamber at side of the Fforest great chamber.
The bedchamber to the Fforest great chamber.
The withdrawing chamber.
The bedchamber the best lodging; and pallet there.
The withdrawing chamber.
The inner chamber to the best lodging.
The gallerie by the best lodging.
The Hill Great chamber.
The corner chamber over M^r^ W^m^ Cavendishes chamber; and pallet.
The corner chamber next the court; and pallet there.
The inner chamber to that chamber.
The inner chamber to the corner chamber over M^r^ Cavendishes chamber.
M^r^ Digbies chamber.
M^r^ Reasons chamber.
M^r^ Manners; and pallet there.
The Inner chamber to M^r^ Manners.
M^r^ Fortescue's chamber; and pallet there.
The inner chamber.
The lyttell hotte hous chaber.
My lady maid chaber.
My lad^s^ chambre.
The Cony bedd chambre.
The Svantt chambre.
The wardrope.
Nycolys [Kynnersley's] chambre.
Mousholl chambre.[1]
The tyrrett of the south.

My Ladies chamber.
The inner chamber.
The sceeled chamber next my Ladies with drawing chamber.
The Long Gallery.
The lowe dyning chamber.
My ladies olde bedchamber.
The utter chamber to it; and pallet there.
M^r^ W^m^ Cavendishes chamber.
The Nurserie.
The utter chamber.
The wardrob.
The chamber over agayst the Wardrob.
The little chamber at the lowe dyning chamber door.
M^r^ Knyveton's chamber.
The corner chamber.
The next chamber to it.
The chamber over agaynst that chamber on the grounde.
The chamber at the side of the hale the Ushers chamber.
The chamber within that chamber.
The halle.
The chamber at the upper end of the halle.
The kytchin.
The larder.
The lowe larder.
The Pastrie.
The chamber over the larder.
The chamber by the court side.
Too chambers at the end of the gallerie the dore opening into the court.
Chamber on the turret.
Six other chambers there.

[1] Sir William St. Loe had a servant called Mousehall.

The stable court :

The chamber over the Bake house.
The bakehouse.
The brewhouse.
The wash house.
The chamber over it.
The dayrie.
The slater house.
The chaundlers house.
The stable.
The chamber over the stable.
Mr Cavendish stable.
The Still House.
The smithie.

Hardwick New Hall :

The turret.
Another turret.
The turret at the stair head ; and pallet.
The Green bed chamber ; and pallet.
The turret bed chamber.
The turret bed chamber the utter chamber.
The servants chamber next the wardrop.
The gallery chamber ; and pallet.
The Pearle chamber ; and pallet.
The closet by the Pearle chamber.
The wardrop ; and the room at the wardrop dore.
The best bed chamber.
The servants room to the best bed chamber.
The passage between the best bed chamber and the gallery.
The withdrawing chamber.
The high great chamber.
The Gallerie.
The Shipp bedchamber ; and little closet.
Tobies chamber ; and pallet.
The Jacobs chamber.
The half pace at the stare head.
The uppere chapple.
The lowe chapple.
The little dyning chamber.
The lowe great chamber.
My ladies withdrawing chamber.
My ladies chamber ; and pallet.
The little room within the dressing room.
The Maydes chamber ; and closet within.
. . . .
Lady Arbells chamber ; and little closet.
Wm Cavendish chamber.
Chamber at the end of the walk.
Nurserie.
Mr Knivetons chamber ; and pallet.
Chamber between the pantrie and Nurserie.
The Hale.
The little room between the Chapel and Hale.
The Pantrie.
The chamber within the pantrie.
The buttrie ; and sellors.
The wyne sellors.
The kitchin.
The little kitchin.
The dry larder.
The lowe larder.
The pastrie.
The scullerie.
The surveying place by the kitchin dore.
The little turret on the south side of the court.

APPENDIX III

List of Craftsmen employed at Chatsworth and Hardwick.

N.B.—The principal variations in spelling are given in brackets, but the identification is often conjectural. The date is that of the first appearance in the accounts at Chatsworth (Ch.) or Hardwick (H.), as the case may be. The figure denotes the wage per day where recorded, board being usually provided; where the man 'found himself', f. h. is added, the wage being usually double in this case. The terms, however, are often open to conjecture.

I. *Masons.*

A = apprentice LSG = limestone-getter M = mason MG = marble getter
MM = marble mason P = pavior SG = stone-getter W = waller

Accres (Akers), Thos. MM. Ch. Feb. '76; H. Aug. '94.
Adams, M. H. Mar. '94–5.
Ashley, Raff. W. H. Aug. '91.
Ashmore, Robt. W. Ch. May '77, 4*d.*; H. Jly '87.
Barber, W^m^. M. Ch. May '78, 6*d.*
Beane, Bartol. M. H. Aug. '91, 12*d.*, f. h.
Beane, Xpher. M. H. Aug. '91, 12*d.*, f. h.
Beane, Gabriel. M. H. Jly '91, 14*d.*, f. h.
Beane, Thos. M. H. Jly '91, 7*d.*
Belfield, Thos. M. Ch. (Church), Sep. '60, 7*d.*
Bell, Raffell. W. H. May '89.
Bentley, Oliver. M. H. Sep. '91.
Birche, Roger. P. Ch. May '60, 5*d.*
Birds, Rich^d^. M. Ch. Feb. '79, 3*d.*–4*d.*
Bramwall, Jn. W. H. Jly '91, 6*d.*
Brent, Jn. M. Ch. Feb. '77, 6*d.*
Browne, Jn. W. H. Jly '91, 6*d.*
Bull. M. H. Sep. '92.
Bullow. W. H. Jly '91.
Buttree, Jn. W. H. Sep. '91, 8*d.*
Catling. P. '99.
Chandler, Jn. M. Ch. Nov. '78, 6*d.*
Chelton, Walter. M. H. Jly '91.
Colbeck, Lenord. M. H. Sep. '87, 6*d.*
Colleshaw, Jn. M. Ch. May '59, 4*d.*
Copley. W. H. Aug. '95.
Coward, Robt. W. H. Jly '91, 6*d.*
Crossley, Geo. W. H. Jan. '88.
Dangrefelde, Jn. W. Ch. May '77, 4*d.*
Dobson, Jn. W. H. Jly '87, 4*d.*
Dolphin, Geo. (Lawrence). A. H. Mar. '95–6.
Dossen, Thos. W. H. Aug. '91, 6*d.*
Drue. M. H. Jan. '95–6.
Dudsbery. W. H. Aug. '91, 6*d.*
Esquire. M. H. Jly '91.
Foxe, W^m^. W. H. Sep. '96, 4*d.*
Gifford. MM. H. Nov. '94.
Glover, Roland. M. H. Jly '87, 6*d.*
Goodrood, Robt. W. H. Sep. '91, 6*d.*
Gratless. W. H. Oct. '87, 4*d.*
Greves, Henry. M. Ch. May '60.
Greves, Jn. M. Ch. May '60.
Greves, Robt. M. Ch. Aug. '60.
Greves, Wm. M. Ch. Jun. '60.
Gryffin, Michæl. M. H. Oct. '97.
Gryffin, W^m^. M. H. Feb. '95–6.
Hallam, Jn. W. Ch. May '77, 4*d.*
Halle, Jn. M. Ch. May '60, 4*d.*–6*d.*
Halle, Michæl. M. Ch. Mar. '78, 6*d.*
Halle, Robt. W. H. Aug. '91, 6*d.*
Halle, W^m^. M. Ch. May '60, 6*d.*
Halley, Godfrey. M. Ch. Aug. '80.
Halley, W^m^. M. H. Sep. '96.
Hamand, Gregory. M. H. Jly '91.
Harwood, Jas. W. H. Jly '91.
Hawksworth. W. H. Sep. '87.
Hawlye. M. Aug. '94.
Hayatt, Jas. M. H. Aug. '89, 11*d.*
Hollingworth, Jas. W. H. Aug. '96.
Hollingworth, Thos. J^r^. W. H. Aug. '96.
Hollingworth, Thos. S^r^. W. Ch. Jly '77; H. Jly '87, 4*d.*

Hollingworth, Raphyel. M. H. Mar. '95–6.
Hollingworth, W^m. W. H. Aug. '96.
Holm, Robt. SG. Ch. May '79; H. Jly '87, 7*d.*
Huett, Jn. W. H. Sep. '91, 6*d.*
Hulle, Thos. W. Ch. May '77, 4*d.*
Hullewell, Lawrence. M. Ch. May '77, 6*d.*
Jamys, Roger. LSG. Ch. Aug. '60, 5*d.*
Jarm, John. M. H. Oct. '90.
Lambard, Jn. W. H. Jly '91, 4*d.*
Laverock, Nic. M. Ch. Sep. '79.
Lee, Jn. W. Ch. Jun. '77, 4*d.*; H. May '91.
Lester, Hy. Pareller. H. Jly '91, 10*d.*, f. h.
Lowe of Ashford. LSG. Ch. Aug. '60, 5*d.*
Lyon, Jn. W. H. Jly '91, 6*d.*
Lyptrot, Jn. M. H. Aug. '91.
Malliard, Mallory Rich^d. M. H. Feb. '88.
Mand, Jn. MG. Ch. '78.
Mason, Cutbeard (Cuttbert). M. H. Jly '91.
Mecock, W^m. W. H. Jly '91, 6*d.*
Milnes, Harry. W. Ch. May '77, 4*d.*
Milnes, Humph. W. Ch. May '77, 4*d.*
Nealle, Harry. M. H. Jly '87.
Neave, Steven. M. Ch. Feb. '77.
Northoll (Mirtholl), Jn. W. H. Jly '87, 4*d.*
Odell. M. H. Jan. '95–6.
Outram, Owtering, Owethrame, { Rich^d. M. Ch. Aug. '60, 4*d.* / Thos. M. Ch. Aug. '60, 4*d.*; W. H. Jly '87.
Padley, Miles (Jas.) A. H. Feb. '95.
Peartree, Robt. W. H. Sep. '91.
Plomtree, Geo. W. H. Oct. '90, 6*d.*
Plomtree, Godfrey. W. H. Aug. '87, 4*d.*–6*d.*
Plomtree, Raff. W. H. Oct. '90, 6*d.*
Plomtree, Renold. W. H. Jun. '89, 6*d.*
Primett, Ric^d. W. H. Sep. '91, 6*d.*
Rees, Jn. W. H. Sep. '91, 8*d.*
Roberts, Thos. M. Ch. Jan. '79, 6*d.*
Rodes, Xpher. M. H. Jan. '92–3.
Rodes, J^n. M. H. Nov. '91, 8*d.*
Rose, Harry. W. H. Jly '91, 6*d.*
Rothwell, Robt. M. H. Sep. '87.
Russell, Ambrose. M. Ch. Aug. '77, 6*d.*
Salt. M. Derby Almshouses, Oct. '97.
Samson, Robt. M. H. Jly '87, 6*d.*
Scuthe, W^m. M. H. Sep. '87, 6*d.*
Shute, J^n. M. Ch. Jan. '76, 6*d.*
Shute, W^m. M. Ch. Aug. '77, 6*d.*
Smith, Abram. M. Ch. '81; H. Feb. '88–9.
Steare. SG. H. Oct. '87, 3*d.*
Steven, Robt. W. H. Jly '91, 6*d.*
Stewardson, Jas. W. H. Jly '91, 6*d.*
Strutt. SG. H. Jun. '88.
Sympson, Peter. M. Ch. Feb. '77.
Tabout, Ed. W. H. Sep. '91, 6*d.*
Taylor, Thos. M. Ch. Ap. '77, 6*d.*
Thorpe, Thos. P. Ch. Jan. '60, 5*d.*
Tomlinson, Robt. W. Ch. Feb. '77.
Tomlinson, Roger. W. H. Jly '87, 4*d.*
Truscott, Rich^d. W. H. Oct. '91, 6*d.*
Tunstall. M. H. Sep. '91.
Twigg (Twidge), Jn. M. Ch. May '77, 6*d.*
Vinoth, Jn. W. H. Sep. '91, 6*d.*
Wafell, Jn. W. H. Sep. '91, 6*d.*
Walker, Fran. W. Ch. Jun. '77, 3*d.*
Walton (Wellilon), Robt. W. H. Aug. '91, 6*d.*
Warde, Hy. M. Ch. Sep. '60, 4*d.*; H. Jan. '87.
Warde, Jn. M. H. Jly '91, 10*d.*, f. h.
Warde, Jn., J^r. M. H. Aug. '91.
Warrington. W. H. Ap. '96.
Wattkinson, Humph. W. H. Jan. '88.
Wheelberd. M. H. Sep. '91.
Wheeler, Robt. W. H. Jan. '88.
Wilson, Anthony. W. Ch. May '77, 4*d.*
Wilson, Robt. M. H. Aug. '89, 12*d.*, f. h.
Winchester, Robt. M. H. Sep. '89.
Woodhouse, Ed. M. Sep. '92, 6*d.*
Wright, Hy. LSG. Ch. Aug. '60.
Yealatt, Thos. W. H. Ap. '96, 6*d.*

II. *Slaters.*

S = slater SG = slate-getter

Abell, Humph. SG. Ch. Jly '60, 4*d.*
Abell, Roger. SG. Ch. Aug. '60, $2\frac{1}{2}$*d.*
Carnell, Hy. SG. Ch. May '60, 2*d.*
Garlegg, Oliver. S. Ch. Sep. '60, 4*d.*
Haddfeld, Thos. S. H. Sep. '87, 4*d.*
Heginbottom, Otwell. S. H. Aug. '87, 4*d.*

Heginbottom, Robt. S. H. Aug. '87, 4*d.*
Heginbottom, W^m^. S. H. Aug. '87, 4*d.*
Hobson, J^n^. S. Ch. Sep. '60, 4*d.*
Hygedon, Thos. SG. Ch. Jly '60, 2*d.*
Knowles, Thos. S. H. Oct. '90, 4½*d.*
Mosele, Jn. S. Ch. May '60, 4*d.*
Mosele, Thos. S. Ch. May '60, 3*d.*
Samson, Fran. S. Ch. Sep. '60, 2½*d.*
Worthington, Ed. S. H. Jan. '87, 4*d.*
Worthington, J^n^. S. H. Oct. '89, 4*d.*
Wright, Jn. S. Ch. Oct. '60, 4*d.*

III. *Carpenters.*

C = carpenter J = joiner LM = lathmaker S = sawyer
Wh = wheelwright WM = wainsmender

Accresley, W^m^. J. H. Aug. '92.
Alen, Thos. C. Ch. Aug. '50, 5*d.*–6*d.*
Allin, J^n^. C. Ch. Jly '79.
Allin, Rich^d^. C. Ch. May '78, 3*d.*
Allin, Thos. C. Ch. Jan. '76, 2*d.*–3*d.*
Baford, J^n^. C. H. Nov. '93, 4*d.*
Barnes, Thos. Wh. H. May '89, 4*d.*
Batemanson, Robt. C. Ch. Aug. '60, 12*d.*, f. h.
Baynbrigg. C. H. Sep. '95.
Beighton, J^n^. C. H. Jly '88, 9*d.*, f. h.
Beighton, Thos. C. Ch. Jun. '80; H. Jly '88, 9*d.*, f. h.
Benbridge. C. H. Aug. '95.
Birchley (Birchells), Peter. H. Oct. '88, 4*d.*
Bissiter. C. Ch. Dec. '51.
Boring, Thos. C. Ch. May '60, 4*d.*
Boswell, Jas. C. Ch. May '77, 4*d.*
Bower, Ed. LM. H. Jan. '87, 6*d.*
WM. H. Aug. '87, 7*d.*
Bower, Thos. C. H. Nov. '87, 4*d.*
Bowver, Martin. C. H. Oct. '89, 4*d.*
Bradley. J. Ch. Jun. '80.
Bradshaw, Geo. C. Ch. Jan. '77, 2*d.*
Briges. C. H. Sep. '87, 4*d.*
Brockshaw. C. Nov. '92. } brothers
Brockshaw. C. Nov. '92. }
Broke, Anthony. C. H. Aug. '92, 6*d.*
Broke, Ed. C. H. Aug. '92, 4*d.*
Bromley, Hy. C. H. May '91.
Bromley, W^m^. C. H. May '91, 4*d.*
Bucknall, Hy. C. Ch. Aug. '60, 5*d.*
Bucknall, Jn. J. Ch. May '60, 6*d.*
Bucknall, Robt. J. Ch. May '60, 8*d.*, f. h.
Carlell, Arthur. S. H. Oct. '88, 7½*d.*, f. h.
'Carpenter,' W^m^. C. H. Jan. '90.
Chadwick, Jn. C. H. Sep. '88, 6*d.*
Clark, Nich. S. H. Jly '89, 8*d.*
Claton, Rich^d^. S. H. Oct. '89, 4*d.*
Clayton, Theo. S. H. Oct. '87, 4*d.*; 8*d.*, f. h.
Cliff, Peter. C. Ch. Jly '77, 5*d.*
Cockyn, Rich^d^. C. Ch. May '60, 4*d.*
Cockyn, W^m^. C. Ch. May '60, 4*d.*
Couper. C. H. Oct. '90, 4*d.*
Cover, Hy. C. H. Oct. '88, 6*d.*; 9*d.*, f. h.
Cowley, Ed. C. H. Jly '87, 2*d.*–4*d.*
Cowp, Jn. Wh. H. Ap. '96.
Cranidge, Jas. C. Ch. Sep. '77.
Dove. C. H. Jly '90.
Drable, Hy. C. H. Jly '91, 4*d.*
Drable, Rich^d^. C. Ch. Jan. '77, 4*d.*
Farnsworth. S. H. Jly '92, 4*d.*
Ferneley, Jas. S. H. Aug. '87, 8*d.*, f. h.
Fletcher, Jas. C. H. Aug. '87, 4*d.*
Fletcher, Jn. C. H. Oct. '89, 3*d.*
Fogg, Thos. (of Welbeck). S. H. Sep. '87.
Fox, Jn. S. H. May '91.
Frettwell. S. H. Sep. '91.
Gibson, Thos. C. H. Jly '87, 4*d.*
Gibson, W^m^. C. Ch. Aug. '60, 5*d.*
Gladwyn, Robt. C. Ch. Aug. '60, 5*d.*
Golyas, Hy. S. H. Aug. '92, 4*d.*
Green, Thos. C. Ch. May '60.
Green, Thos. J. H. May '89.
Greene. LM. H. Oct. '87, 8*d.*, f. h.
Grey, Godfrey. C. H. Oct. '90, 4*d.*; 7*d.*, f. h.
Grynsmith. S. H. Dec. '92.
Gybles, W^m^. C. Ch. Aug. '60, 5*d.*
Hancock, Rich^d^. S. Oct. '87, 2*d.*

Hartlow, Richd. C. Ch. Jly '79, 4*d.*
Heath, Thos. S. H. Sep. '92.
Hibard, Jn. C. Ch. May '60; H. Jly '87, 4*d.*
Hicket, Geo. C. Ch. Jan. '76; H. Jun. '97.
Hilton, Richd. S. H. Oct. '88, 7½*d.*, f. h.
Hindell, Jn. S. H. Jly '91, 3⅓*d.*
Holle, Hy. S. H. Aug. '87, 8*d.*, f. h.
Holme, Jn. C. H. Jly '87, 4*d.*
Holme, Robt. S. Ch. Jly '60, 4*d.*
Holme, Thos. S. Ch. Jly '60, 4*d.*
Housendalle, Richd. S. Ch. Aug. '60, 5*d.*
Hunt, Hy. S. H. Sep. '87, 8*d.*, f. h.
Hyd, Wm. C. Ch. Aug. '59, 4½*d.*–5*d.*
Jackson, Thos. S. H. Ap. '89, 4*d.*
Jaxton, Wm. S. H. Oct. '87, 4*d.*; 8*d.*, f. h.
Jenkinson, Wm. C. H. Sep. '92, 4*d.*
Jennings, Jn. C. Ch. Jly '77, 5*d.*
Jessop, Ed. C. Ch. Jly '80, 5*d.*
Johnson. Coop. Aug. '92.
Keen, Lawrence. C. Jly '92, 5*d.*
Langley, Ed. LM. H. Nov. '87.
Laverock, Fran. S. H. Jly '89.
Laverock, Jn. S. Ch. Aug. '60, 5*d.*
Lee (of Rowgtone). C. H. Dec. '92.
Lees. S. H. Sep. '87, 8*d.*, f. h.
Livsley. LM. H. Oct. '90, 3*d.*
Lycar, Hy. C. Ch. May '60, 3*d.*
Mannifold, Richd. C. Ch. Aug. '60, 5*d.*
Marchell. C. H. Sep. '87, 6*d.*
Medley, Thos. C. H. Sep. '87, 6*d.*
Midlam, Thos. C. H. Nov. '87, 6*d.*
Millington, Ed. C. LM. H. Sep. '87, 4*d.*
Mills. C. H. Dec. '88.
More, Gilbert. S. H. Sep. '88, 7⅓*d.*, f. h.
Newton, Jas. C. Ch. Aug. '60, 6*d.*
Newton, Raffe. C. Ch. Aug. '60, 5*d.*
Newton, Richd. C. H. Sep. '91, 4*d.*
Nycolas. J. Ch. Sep. '60, 5*d.*
Nyghttingalle, Richd. J. H. Jly '88.
Oldham, Ed. C. H. Jly '92, 4*d.*
Oldham, Robt. S. H. Jly '92, 4*d.*
Oldham, Wm. S. H. Jly '92, 4*d.*
Peacock. J. H. Sep. '97.
Penson, Jn. C. H. Oct. '91, 4*d.*
Pilkington, Jn. C. Ch. Sep. '77, 6*d.*
Potts, Xpher. S. H. Oct. '88, 4*d.*; 7½*d.*, f. h.
Purvesse. C. H. Oct. '87, 3*d.*
Raworth, Robt. C. Ch. Jan. '77, 4*d.*
Rawson, Richd. C. H. May '92, 4*d.*
Rawson, Robt. C. H. May '92, 4*d.*
Reason, Jn. C. H. May '88.
Redforth, Edmund. J. H. May '89.
Rivington, Geo. S. H. Jly '89, 8*d.*, f. h.
Robinson, Alex. C. H. Jly '91.
Rossen. C. H. Sep. '87, 4*d.*
Rossen (of Mansfeld). LM. Oct. '87, 4*d.*
Rowarth (Rowood), Jn. C. Ch. Mar. '60; H. Sep. '87, 6*d.*
Rowarth, Wm. C. H. Sep. '87, 4*d.*
Saydgfeld, Xpher. C. Ch. Ap. '77, 6*d.*
Setchfeld, Wm. J. H. Oct. '89, 4*d.*
Sharlston. S. H. Oct. '87, 2*d.*
Shefeld, Paul. C. Ch. May '77, 5*d.*
Shute, Xpher. C. Ch. Jan. '77, 2*d.*
Smyth, Hy. C. Ch. May '60, 5*d.*
Smyth, Jn. C. Ch. May '78, 4*d.*
Smyth, Raf. C. H. Mar. '88.
Smyth, Thos. C. H. Sep. '95, 4*d.*
Swindelhurst, Peter. C. H. Sep. '91, 4*d.*
Symson, Jn. C. H. Oct. '88, 4*d.*; 7*d.*, f. h.
Thomas. J. Ch. Mar. '79.
Tinnsley, Wm. C. Ch. May '60, 5*d.*
Tomson, Renold. S. H. Oct. '90, 4*d.*
Tripett, Wm. LM. H. Dec. '96.
Turner. C. H. Sep. '87, 8*d.*, f. h.
Wadsworth, Jermyne. C. H. Sep. '92, 4*d.*
Wallas. C. H. Aug. '89, 4*d.*
Wardlow, Geo. C. H. Sep. '91, 6*d.*
Wheerell, Hy. C. H. Nov. '88, 6*d.*
Wheerweek, Hy. S. H. Sep. '91.
Williamson, Fran. C. H. Sep. '87, 4*d.*
Woodhouse, Thos. S. Ch. Aug. '60, 5*d.*
Woodthorpe, Nich. S. H. Aug. '92, 4*d.*
Woodthorpe, Roger. S. H. Aug. '92, 4*d.*
'Wright', Jn. Wh. H. Jly '91, 6*d.*
'Wright', Thos. Wh. H. Sep. '91, 6*d.*
Wyld, Geo. S. H. Jly '89, 4*d.*
Wyld, Nic. S. H. Aug. '89, 4*d.*
Yats. C. H. Jan. '92–3.
Yearn. J. H. Oct. '90.

IV. *Smiths.*

Clay, Robt. (of Hucknall). Ap. '89.
Cutler (of Bakewell). Locksmith. Jan. '93.
Drable, Humph. Ch. Oct. '79, 4*d.*
Drable, Jas. Ch. Jun. '59, 4*d.*
Fryth. Ap. '88.
Gardener, Geo. H. Ap. '89.
Gardener, Jn. Mar. '95.
Gardener, Thos. H. Nov. '92.
Greasbrook. Oct. '88.
Hinchclyf (of Shefield). May '80.
Hoyland, Richᵈ. May '88.
Kenerick (of Chesterfield). Ap. '95.
Ludlam, Thos. Jun. 3, '88.
Midelton. Jly '88.
More, Franc. Sep. '95.
More, Nich. Dec. '92.
Morehouse, Jn. Jan. '93.
Nightingall, Ricᵈ. Ch. Sep. '77.
Orme (Horne), Ricᵈ. (of Wingfield). Mar. '92.
Redford, German. Ju. '92.
Salles, Xpher. Ju. '91.
Scoll, Wᵐ. Oct. '89.
Smyth, Sylvester. Sep. '95.
Stevenson, Wᵐ. Oct. '88.

V. *Plasterers.*

Bell, Wᵐ. Ch. May '60, 4*d.*
Bouthe. Ch. '81.
Bynney. H. Jun. '95.
Haryson, Xpher. H. Jly '91, 6*d.*
Hill, Robt. H. Mar. '94–5.
Hindle, Jas. H. May '88.
Howlmes, Wᵐ. H. Nov. '88, 20*s.* qr.
Marker, Jⁿ. Ch. Aug. '79; H. Jly '90, 6*d.*
Mor, Thos. H. Mar. '94–5.
Norman. Ch. Aug. '79.
Onde, Adam. Ch. Aug. '79, 6*d.*
Orton, Richᵈ. H. Jly '95, 6*d.*
Pyper, Raffe. Ch. Jun. '60, 5*d.*
Radg, Hy. H. Ap. '96.
Radg's son. H. Ap. '96.
Scargill, Robt. H. Mar. '90.
Smyth, Abram. Ch. '81; H. Feb. '88–9.
Smyth, Jⁿ. H. Nov. '90.
Thomson. Ch. Jun. '60, 5*d.*
Walys, Wᵐ. Ch. May '60.
Wilson, Thos. H. Aug. '89, 6*d.*

VI. *Plumbers.*

Alicock, Jn. H. Aug. '94, 8*d.*, f. h.
Bland, Ed. H. Aug. '94, 3*d.*
Bolmer (Boomer), Jas. Ch. '78, 12*d.*, f. h.; H. Mar. '91, 6*d.*
Bracks, Thos. H. Aug. '90, 8*d.*, f. h.
Carnell, Arthur. H. Aug. '94, 6*d.*
Durham, Thos. H. Jly '97.
Kellond. H. Feb. '94–5.
Richman. H. Oct. '87, 1*s.* with boy.
Salt, Jn. H. Aug. '94, 1*s.* with boy.
Sanderton, Wᵐ. H. Aug. '91.

VII. *Glaziers.*

Alam (Halom), Lenord. Ch. Ju. '60, 8*d.*
Francis ——. Ch. Ju. '79.
Jury. H. Sep. '95.
Snidall. H. Ap. '88.
Watkin, Thos. Ch. May '60, 6*d.*
Watkinson, Jn. Ch. May '60, 5*d.*

VIII. *Painters.*

Lame. H. '98.
Needham. H. Ju. '95.
'Painter' (? Kniveton), John. Ch. May '78; H. Nov. '92.
'Painter', Richard. Ch. Jan. '79, 6*d.*

IX. *Miscellaneous.*

Barnett. Embrodrer. May '52.
Beard. Carpet Weaver. H. Oct. '92.
Good (Dandridge), Jn. Mat-maker. H. Nov. '89.
Heaward. Mat-maker. H. Jun. '96.
Taylor. Inlayer. Ch. Dec. '77.
Webb, J^{n}. Imbroiderer. H. '98.

X.—*Malmesbury Abbey.* *By* Harold Brakspear, *Esq., F.S.A.*

Read 3rd April, 1913.

The once rich and mitred abbey of Malmesbury has provided a subject for many writers, and the remains of its church a model for artists and draughtsmen, but no one seems to have combined description and drawing to explain the history of this building. The writer, having been engaged professionally for many years upon the repairs of the church, has had exceptional opportunities for the study of the structure, and although much of necessity has been said before, some little fresh matter has been brought to light.

History of the Monastery.

Malmesbury stands on a steep hill surrounded by the waters of Avon and Newnton brook, save for a narrow neck to the north-west. In ancient days it must have been wellnigh impregnable, for the low-lying ground on all sides would have been impassable swamp. This natural stronghold was doubtless from the earliest time occupied for human habitation, though no direct evidence of such occupation has been found. In Roman days it seems to have been neglected, though the great north road from Bath passed within two miles of it, and there was a small station at Brockenburgh and a villa at Easton Gray.

About the year 640 an Irish teacher named Maeldubh settled here and founded a school and small church. He gained great repute, and Ina, king of Wessex, sent his nephew Aldhelm to study under him. Aldhelm became head of the school in 676, and from his time the importance of Malmesbury began.

Aldhelm converted the school into an abbey under regular rule. He enlarged the old church of Maeldubh and hallowed it in honour of the Holy Saviour, St. Peter, and St. Paul, and placed the dwelling for the monks adjacent.[1] He built not far off a new church of St. Mary, and another contiguous to it of St. Michael.[2]

In 705, upon the death of Hedda, bishop of Wessex, Ina divided the extensive see of Winchester and established a bishopric at Sherborne, to which he appointed

[1] William of Malmesbury (Rolls Series, 52), p. 345.

[2] *Ibid.*, p. 361.

his relative Aldhelm.[1] Aldhelm carried on his capacity for building in his new sphere by beginning the cathedral at Sherborne[2] and founding monasteries at Frome and Bradford-on-Avon.[3] Aldhelm died in 709 at Doulting, and his body was conveyed by easy stages to the scene of his first labours at Malmesbury, where it was buried in the church of St. Michael, which he had built. The monks were then removed from Christ Church to St. Mary's, to be nearer the body of their founder.[4]

King Ethelwolf (837) caused the bones of St. Aldhelm to be placed in a silver shrine.[5] A fire occurred in the time of King Alfred which burnt the monastery, and King Athelstan is said to have rebuilt it from the foundations.[6] The shrine of St. Aldhelm was moved by Dunstan (955) to St. Mary's. He gave a pair of organs to the church, and later, for fear of the Danes, caused the relics of St. Aldhelm to be taken from the shrine and placed in a grave on the north side of the altar.[7]

King Athelstan gave lands to the monastery, and at his death in 941 was buried under the altar of St. Mary in the tower.[8] Abbat Elfric (977–82) rebuilt the monastery.[9] He appears also to have rebuilt the church.[10] He was appointed to the see of Crediton in 977. A second fire destroyed the monastery in 1042.[11]

Herman, the last bishop of Wilton, built a bell tower at Malmesbury,[12] and, dissatisfied with his residence, tried to induce the king (Edward the Confessor), whose chaplain he had been, to remove the see to Malmesbury, but the idea was frustrated by the abbat and monks through the powerful influence of Earl Godwin.[13]

The Norman invasion affected Malmesbury but little, save that the Saxon abbat was deposed, and a foreigner, Thorold of Fécamp, instituted in his stead. Thorold, being removed to Peterborough in 1070, was succeeded by Warin de Lyra, who replaced the relics of St. Aldhelm in their shrine.[14] He also enlarged St. Michael's church, and caused the reputed relics of Saxon saints which were contained in vessels on either side of the altar to be buried.

In 1118 Roger, the domineering bishop of Sarum and chancellor of England, seized the abbey for his own use, and built a castle at Malmesbury to keep the monks in subjection.[15] The site of the castle was apparently near the east gate of the town, though various writers have placed it at the west gate, forgetting that the cemetery which it is said to have encroached upon was that of the monks to the east of the church, and not the present parish churchyard.

[1] William of Malmesbury (Rolls Series), p. 375. [2] *Ibid.*, p. 378. [3] *Ibid.*, p. 346.
[4] *Ibid.*, p. 385. [5] *Ibid.*, p. 389. [6] *Ibid.*, p. 364. [7] *Ibid.*, pp. 407–8.
[8] *Ibid.*, p. 397. [9] *Ibid.*, p. 405. [10] Bohn's *Antiq. Libr.*, p. 139.
[11] William of Malmesbury, p. 363. [12] Leland, *Collectanea*, i. 301.
[13] William of Malmesbury, p. 420. [14] *Ibid.*, p. 424. [15] Bohn's *Antiq. Libr.*, p. 505.

Roger died in 1139 and the monastery regained its rights, which are contained at length in an exemplification of Pope Innocent II, dated x kal. Junii 1142.[1]

It is reasonable to suppose that, upon the restitution of the revenues to the abbey, the building of the great church, of which the present is a fragment, was contemplated. William of Malmesbury, the historian and inmate of the convent, wrote just before his death in 1143:

> The spacious structure of the larger church was standing, and in size and beauty exceeded any other religious edifice in England.[2]

This clearly shows that the new church was not begun, but it may be imagined that the statement, considering that such churches as Winchester, Tewkesbury, and Gloucester were completed, was made in antagonism to the proposal by one who loved the old order of things. The new church at Malmesbury would be started at the east end in the usual manner and continued gradually westward.

King John, just before his death in 1216, granted to the abbat and convent 'the place in which is situated the castle of Malmesbury, with leave to pull down the buildings and erect others at their will'.[3]

Owing apparently to the influx of pilgrims to St. Aldhelm's shrine in the thirteenth century the presbytery was lengthened eastward, which work encroaching on the cemetery doubtless caused the building of the charnel for the reception of the disturbed bones. This was endowed with land at Fowleswick in 1267 for a chaplain, and a house was given for his use in East Street.[4]

William of Colerne became abbat in 1260 and died in 1296. He was a great benefactor to the convent, and during his abbacy caused to be made (1) a hall, with kitchen, larder, and a camera, next his garden; (2) the carpenter's shop with two houses; (3) the dorter to be remodelled; (4) the chapter-house to be remodelled; (5) a garner next the bakehouse; (6) a new brewhouse; (7) a new forge; (8) a poor house and stables; (9) a mill; (10) the chapel of St. Aldhelm in the garden; and (11) a new infirmary.[5] In 1284 the water-pipes to the offices of the abbey were put down, and water first flowed into the lavatory on St. Martin's day. The expense of laying on the water from Newnton was £100.[6]

In the fourteenth century the central tower was raised and a high spire added, vaulting was put to the transepts and nave, and the clearstories were remodelled. Quite at the end of the century a square tower was built over the two western bays of the nave.

[1] *Registrum Malmesburiense* (Rolls Series, 1880), i. 352. [2] William of Malmesbury, p. 361.
[3] *Reg. Malmes.*, i. 340. [4] *Ibid.*, ii. 123, 125. [5] *Ibid.*, ii. 365 (see Appendix I).
[6] *Ibid.*, ii. 361. 'Expensae circa conductum aquae. In aqua ducta ad officinas abbathiae per conductum anno Domini M°.CC octogesimo quarto et anno regni regis E. xii. Et die Sancti Martini annis supradictis primo fluebat in lavarium, c. *li*.'

In the fifteenth century a new building was erected over the south aisle of the nave, and the alleys of the cloister were rebuilt and vaulted.

William Worcester, a native of Bristol, visited Malmesbury in the fifteenth century, and, as was his custom, stepped the principal sizes of the church, which, judging by dimensions which can be tested, are tolerably accurate and work out at about $19\frac{1}{2}$ in.[1] His notice of Malmesbury is as follows:

> Longitudo tocius ecclesiae monasterii Sancti Adelmi de Malmesbery cum choro continet 172 gressus meos ($279\frac{1}{2}$ ft.).
> Latitudo ejus continet 42 gressus ($68\frac{1}{4}$ ft.).
> Longitudo capellae Beatae Mariae in orientali continet 30 gressus ($48\frac{3}{4}$ ft.).
> Latitudo capellae ejusdem continet 14 gressus ($22\frac{3}{4}$ ft.).
> Longitudo claustri ex omni parte continet quodlibet claustrum 64 gressus (104 ft.).
> Latitudo navis ecclesiae principalis ultra alas continet 22 gressus ($35\frac{3}{4}$ ft.).[2]

Until a short time ago these dimensions were all that was known of the sizes of the eastern parts of the church, but now these have been checked by the discovery of certain foundations in the trenches of the stable buildings erected on part of the site of the south aisle of the presbytery, which will be described in their place.

The great and rich monastery of Malmesbury was the last in Wiltshire to fall under the Suppression by Henry VIII. It was surrendered by the abbat and twenty-one monks on 15 December, 1539, and its annual value at that time was £830 1*s.* $3\frac{1}{2}$*d.* clear. The abbat was pensioned with 200 marks a year and a house with a garden in Bristol. The monks had pensions varying from £13 6*s.* 8*d.* to £6 a year.[3] Fourteen years after only six survived, four of whom were married.[4]

The site and buildings were committed to the care of Sir Edward Baynton of Bromham, and of these certain were appointed to remain undefaced and others were deemed to be superfluous. Of the former were—

> The late abbat's lodging, with the new lodging adjoining, the kitchen, buttery and pantry, with the lodging over the same. The late abbat's stable, the wool house, the barn at the spital gate. The gatehouse which encloseth the inner court, and the gatehouse which encloseth the outer court.

[1] *Itinerarium Willelmi Botoner* (Cambridge, 1778), p. 83. At Tintern he says: 'Mem. quod 24 steppys sive gressus mei faciunt 12 virgas. Item 50 virgae faciunt 85 gradus sive steppys meos.' An average of these two values seems about the correct unit.

[2] *Ibid.*, p. 283.

[3] *Wilts. Arch. Mag.*, xxviii. 318; *Mon. Ang.*, i. 256.

[4] *An History of the Mitred Parliamentary Abbies*, Brown Willis (London, 1718), i. 140.

The buildings deemed superfluous were committed to the custody of William Stump, deputy of Sir Edward Baynton, and consisted of—

> The church, cloister, and chapel adjoining.
>
> The dormitory, chapter-house, frater, barbery, infirmary, with all the lodgings to them adjoining.
>
> The cellarer's chamber, the squire's chamber, St. Mary's house, the charnel, the convent kitchen.
>
> All the houses in the sextry end, the steward's lodging, the store house, the slaughter house, the guests' stable, and all other houses in the outer court.[1]

The first of these were the chief buildings round the cloister, with the infirmary to the east.

The cellarer's chamber and convent kitchen were to the north-west of the cloister.

Saint Mary's house and the charnel were the house and chapel of the priests of the charnel in the abbey cemetery.

The church, quire, aisles, and steeples, the frater, chapter-house, our Lady's chapel, and the abbat's lodging were each covered with lead which was estimated at 120 foders, and in the steeples were nine bells.

There was one 'miter garnished with silver gilt, small pearls and counter-set stones', reserved to the king's use, together with 574 ounces of silver, silver parcel gilt, and white silver. Other ornaments had already been sold for £208 13*s.* 4*d.*[1]

Whether the demolition of the church and other buildings 'deemed to be superfluous' was begun immediately upon the Suppression or not it is impossible to say.

Owing to the fact that 'the parish church of St. Paul is fallen even unto the ground', William Stump, in whose custody was the abbey, gave to the parishioners the nave of the abbey church to be used for their parish church, and licence to this effect was granted by Archbishop Cranmer at Lambeth, 20 August, 1541.[2]

It was not till three years after that the site of the buildings and lands in Rodbourne, Brinkworth and other places were formally granted to this same William Stump, who is styled 'generosus', for the consideration of the sum of £1516 15*s.* 2½*d.*,[3] saving the bells, and the lead of the roof, gutters, and windows. In the particulars attached to this grant is a list of buildings similar to the first valuation, but with slight variations.

[1] *Aug. Off. Mis. Book*, 494 (see Appendix II).
[2] *Wilts. Arch. Mag.*, i. 249.
[3] *Rot. Pat.*, 36 Hen. VIII, pt. 25, m. $\frac{10}{41}$ (see Appendix III).

At this time Malmesbury was visited by that indefatigable antiquary, John Leland, who relates:[1]

> Ther were in thabbay Chirch Yard 3. Chirches: thabbay Chirch a right Magnificent thing, wher were 2. Steples, one that had a mightie high *pyramis*, and felle daungerusly in *hominum memoria*, and sins was not reedified: it stode in the midle of the *Transeptum* of the Chirch, and was a Marke to al the Countre about. the other yet standith, a greate square Toure, at the West Ende of the Chirch.
>
> The Tounes Men a late bought this Chirch of the King, and hath made it their Paroche Chirch.
>
> The Body of the olde Paroch Chirch, standing in the West [south] End of the Chirch Yarde, is clene taken doun. The Est Ende is convertid *in aulam civicam*.
>
> The fair square Tour in the West Ende is kept for a dwelling House.
>
> Ther was a litle Chirch joining to the South side of the *Transeptum* of thabby Chirch, wher sum say *Joannes Scottus* the Great Clerk was slayne about the Tyme of *Alfrede* King of *West-Saxons* of his own Disciples thrusting and strikking hym with their Table Pointelles.
>
> Wevers hath now lomes in this litle Chirch, but it stondith and is a very old Pece of Work. . . . .
>
> The hole logginges of thabbay be now longging to one *Stumpe*, an exce ding riche Clothiar that boute them of the King.
>
> This *Stumpe* was the chef Causer & Contributer to have thabbay Chirch made a Paroch Chirch.
>
> At this present tyme every Corner of the vaste Houses of Office that belongid to thabbay be fulle of lumbes to weve Clooth yn, and this *Stumpe* entendith to make a stret or 2. for Clothiers in the bak vacant Ground of the Abbay that is withyn the Toune Waulles.

The western tower of the abbey must have fallen shortly after Leland's visit, and the church authorities of the time built up a new west wall in line with the sixth pair of pillars, and walled up the seventh bay of the south aisle so as still to allow the south porch to be used as the entrance.

Early in the seventeenth century the first known drawing of the church was published in the *Monasticon Anglicanum*, and it shows that all four arches of the central tower were standing, and that the building over the south aisle remained with a flat roof. The western doorway was then complete.

John Aubrey, the Wiltshire antiquary, criticizes this drawing as 'ill done', and adds that

> When the great rejoicing was on the King's birthday, 1660, for the return of King Charles II, here were so many and so great vollies of shot, by the inhabitants of the Hundred, that the noise so shook the pillars of the Tower, that one pillar and the two parts above fell down that night.[2]

[1] *Itinerary of John Leland* (Oxford, 1744), ii. 25.
[2] *Wiltshire Collections* (Devizes, 1862), p. 255.

From the end of the seventeenth century to the end of the nineteenth the church remained without much alteration, save that about 1830 the present seats and gallery were put up, new tracery was inserted in the sixteenth-century west window, and the present lath and plaster vaulting erected over the fifth and sixth bays, under the direction of the late Mr. Goodrich, a Bath architect.

In 1899, the building having in many places become dangerous, a scheme of repair was undertaken through the influence of our fellow, the Lord Bishop of Bristol, and carried out under the charge of the writer. This work continued off and on for some years, but the only real alterations to the general appearance of the structure were the building up of the ruinous gap in the south wall of the nave and the repair of the two bays of the aisle beneath.

While these works were in progress excavations were made, through a grant from this Society, on the site of the south transept and quire, but nothing was found except a small patch of tile paving. The writer was afterwards told that when this part of the church was in private hands there were great and ugly heaps of débris, so that, to make it tidy, the then owner contracted with a builder to level the ground for what he could get out of it!

Later, in 1910, through the generosity of Mr. E. S. Mackirdy, the owner of the site of the cloister, and a small grant from this Society, further excavations were made to trace the cloister and site of the surrounding buildings, which will be described later.

The Precinct.

Long before Malmesbury was walled, the monastery was established at the northern end of the hill upon which the town now stands. The precinct upon the hill contains about six acres,[1] and with the exception of a small area running towards the north-west is rectangular in shape, 560 ft. from east to west by 430 ft. from north to south (fig. 1). It was apparently entered on its south side through a gatehouse opposite the end of the High Street.

The great church stands, almost due east and west, nearly in the middle of the area, with the cloister to the north, but owing to the contracted space on that side the other buildings of the abbey spread out to the east and west.

The abbat's house was contained within a circuit wall of its own, protected by a gatehouse, and was to the east of the church.

The guests' quarters, under the charge of the cellarer, were to the west of the cloister, and also had a gateway of entrance—the Spital gate.

The present graveyard was always the lay folk's cemetery, and adjacent to it was 'the Seynt Mary house with the chaundery'. The monks' cemetery was round the east end of the church.

[1] The *Val. Eccl.* (II, p. 119) gives the area of the site that the building extended over as six acres.

The outer court was inside the great gate, now occupied by a brewery and a public-house. It is recorded in 1862 that 'in the narrow street leading from



Fig. 1. Plan of precinct, showing suggested boundary.

Malmesbury Cross to the Abbey House there was to be seen a few years ago the arch of an entrance gateway, part of the wall of which is still against a house'.[1]

[1] *Wiltshire Collections*, p. 260, *note*.



Fig. 1. South side of nave, before repairs



Fig. 2. South side of nave, 1913

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After 1216 the site of the castle, containing some two and a half acres, was given back to the monks and the area thrown into the precinct. This seems to have been unbuilt upon at the Suppression, and to be 'the bak vacant ground of the Abbay that is withyn the Toune waulles' of Leland. The land is still vacant, and a part of it is called the 'Bowling Green'.

The area of the precinct outside the town walls contained some 26 acres, in which were the mill, fish ponds, the vineyards, and farm buildings.

Of the sites of the Saxon churches nothing definite is known.

As the first church of the monastery was hallowed in honour of our Saviour, St. Peter, and St. Paul, it probably stood on the site of the later parish church, which now bears the clipped dedication of St. Paul.

The little old church noticed by Leland adjoining the south transept was probably St. Michael's, some traces of the original building being noticed by William of Malmesbury. Aubrey states, but without giving an authority, that the present abbey house occupies the site of this church.[1]

The third church, St. Mary's, was somewhere on the site of its successor, the great twelfth-century church, but no trace of it has ever been found. Nothing of Elfric's rebuilt church is in existence above ground, nor does it seem to have influenced the setting out of the later church in any way.

The Church.

The great Norman church, of which the present is a fragment, consisted of presbytery with aisles and apsidal end, transepts with eastern chapels, a tower over the crossing, and a nave of nine bays with aisles and a great south porch.

The original presbytery might be expected to have followed the west-country fashion, like Gloucester, Tewkesbury, and Worcester, of having two or three straight bays with aisles, these latter being continued around an eastern apse with three small chapels projecting therefrom. Nothing remains above ground to show if this was the arrangement, but a foundation 12 ft. wide with rounded outer face occurs at 80 ft. from the east side of the crossing. When this is set down on plan it proves itself to have been the foundation of the outer wall of an ambulatory end, and gives three straight bays, of equal width to those of the nave, to the presbytery, like Gloucester. No indications of the three chapels have been found, but as they occurred in all other ambulatory ends it is obvious they existed here.

A fragment of the westernmost bay remains attached to the north-east pier of the crossing, and shows that the principal lines of the eastern arm were carried through into the nave. The main arcade springs from a respond similar to the

[1] *Wiltshire Collections*, p. 260.

eastern responds of the nave, but whether the arches were round or pointed cannot be determined with certainty. Above the arches is a string-course of saw-tooth ornament, having a flat band of enrichment beneath in the form of continuous arches. The triforium had round arches of two orders, of which the outer is ornamented with zigzag and carried by a detached column with scalloped capital. There appear to have been small arches like the nave, but in this case carried by a single half-octagonal column. There was a string-course in line with the springing of the crossing arches, above which is the clearstory passage. In the angle next the tower pier is a double column starting from a base at the triforium level and finishing with a scalloped capital under the clearstory string-course, which was doubtless repeated over each pier of the presbytery. The original capitals clearly prove that these columns were intended to support vaulting, and there is little doubt that the presbytery was so covered from the first; but as everything is destroyed above it is impossible to tell its character.

Externally the weathering over the aisle roof is in line with the string-course between the present clearstory windows of the nave, and there is no indication that the clearstory of the presbytery was remodelled on the north side.

William Worcester's 'steppys' indicate that the original presbytery had been lengthened to the extent of three bays. The church was then over three times the length of the present fragment, and the central tower was exactly midway between the east end of the Lady chapel and the west end of the nave. As already suggested, the lengthening took place about 1267, thus following the fashion of the time. Ely, Winchester, Worcester, Lincoln, and St. Albans were all extended eastward in the thirteenth century, for the sole reason of giving a sumptuous setting to the shrines of their great saints. At Malmesbury the shrine of St. Aldhelm would occupy the middle bay of the new work and have a small altar at its west end. The ends of each aisle would contain altars, and the aisles themselves would be used for passages for the pilgrims going to and from the shrine. The foundation of a wall, 7 ft. thick, was found some 8 ft. south of the line of the aisle wall opposite the easternmost bay, showing that the chapel was wider than the aisle, similar to the corresponding feature at Exeter.

As William Worcester includes the new bays in his total length of the church, there can be little doubt that they were carried to the full height of the presbytery, as at Ely. Two fourteenth-century bosses, now in the vestry, are said to have been found on the site of the presbytery, which if correct shows that the eastern arm was vaulted at that period like the rest of the church.

Whether the Lady chapel was part of the scheme of enlargement, as it was at St. Albans, it is impossible to say. The foundations of the two southern buttresses were found $14\frac{1}{2}$ ft. from centre to centre, showing that the chapel was



Fig. 1. North aisle of nave, looking east



Fig. 2. North arch of central tower

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divided into three bays, it being $48\frac{3}{4}$ ft. long by $22\frac{3}{4}$ ft. wide according to Worcester's measurements. Some 25 ft. to the south of the easternmost bay a stone coffin was found.

The high altar would be in the centre of the apse, as at Winchester, Norwich, and St. Augustine's, Canterbury, and, as at those places, it does not seem to have been moved in later days.

The south transept was 50 ft. in length by 28 ft. wide, and doubtless had originally an apsidal chapel to the east. The whole has been destroyed save the west wall, which stands for two-thirds of its height. It is divided by half-round shafts into three bays of irregular widths, which are formed of three stages, as the rest of the church. The northernmost bay has in the first stage the pointed archway of two members of the nave aisle; the triforium stage is occupied by a round arch on scalloped capitals and jamb shafts embracing three small round arches carried by detached columns. This is built up solid to strengthen the abutment of the central tower, and the clearstory stage retains the northernmost jamb of a window of the fourteenth century of similar character to those of the nave, and the start of a vault of the same date which sprang from capitals about three feet above the string-course under the clearstory.

The two other bays are similar in design, though the southern is 21 ft. wide, so arranged to allow of a wide apsidal chapel opposite. In the lowest stage are round windows with deep splays and small columns at the internal angles, with a wall arcade of simple round arches on detached columns with cushion capitals. The triforium stage has a wall passage with a round-headed window, having detached jamb shafts internally, and on each side a narrow round-headed opening with continuous roll and a subsidiary arch at a lower level inside, similar to those at Worcester and Glastonbury. The clearstory has gone, but doubtless was a continuation of the fourteenth-century remodelling of the northernmost bay.

Externally the free bays had in the first stage window arches of two members, of which the outer is carried by a small attached jamb shaft, and beneath is a continuous wall arcade of interlacing arches. The second stage has a similar window arch, but the mouldings are bolder and the outer member is carried by a detached column. Under these windows is a billeted string-course, and above is a string-course ornamented with beads. None of the windows has ever been filled with tracery, but all retain their original inner members.

At the south-west angle is a bold square turret which contained a vice starting from the triforium level, of which the lower steps remain. Across the south side of this turret is the groove of a steep-pitched roof running southward,

but what was its purpose it is difficult to say; there was no connexion between the church and this building.

In the middle of the south wall was another bold turret, in which was a vice starting from the ground and entered by a doorway in the second wall arch from the west.

Outside this turret was found a wall running southward, which was possibly the wall of the little old church seen by Leland.

On the east side of the middle bay was found a patch of the tile paving, but all the foundations had been grubbed up.

The north transept was presumably the same as the south. Of it remain the southern and part of the next bay of the west wall, and a fragment of the east wall attached to the north pier of the crossing.

What remains of the west wall is precisely similar to the corresponding part of the south transept. The southern bay of the triforium is blocked up for abutment to the tower; the aisle arch was built up after the Suppression, and has in it a small square-headed doorway with a three-light square window over it.

The fragment of the east wall shows a respond of the aisle arch similar to those of the nave. The triforium is of two members, like the presbytery, with bold detached jamb shafts and cushion capitals, and the clearstory had a wall passage like the presbytery, but lined with ashlar, indicating that the fourteenth-century remodelling occurred on both sides of the transept.

The transept had originally a flat ceiling, on to which was a round doorway from the first gallery of the lantern—in fact, the lantern gallery would connect the spaces in the roof over each arm of the cross by means of similar openings.

A fragment of part of the foundation of the northern part of the west wall was found, with one course of its wall face next the cloister.

The crossing originally carried a great square lantern 44 ft. from north to south by 41 ft. from east to west, and still retains its north and west arches, with the responds and springers of the others.

The west arch is semicircular, and springs at 40 ft. from the floor off a slightly projecting corbel: there are no responds, but a couple of semi-columns recessed in the wall carry the line down to the floor. The arch is of three members with a label, and a curious feature is that each member is narrower at the springing than the apex. The innermost member is moulded and double, like that of the nave arcade.

The north arch is semicircular and similar to the west arch, but being much narrower is stilted considerably above the line of springing. It is carried on bold responds having half columns to take the inner member, and a nook shaft on either side to take the two outer members. The capitals are curiously moulded but not carved, and have square abaci.

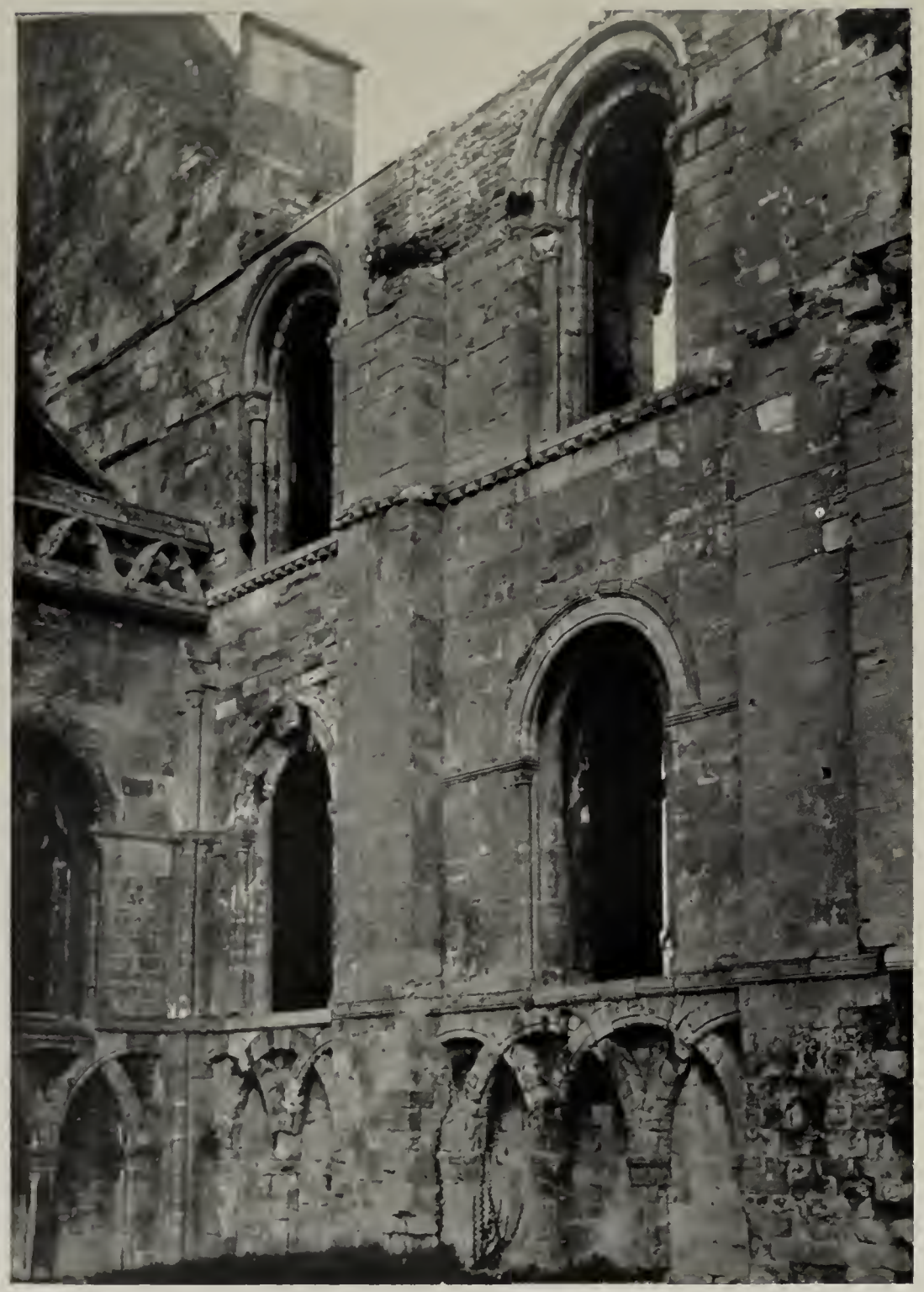


Fig. 1. Exterior of west wall of transept



Fig. 2. Interior of west wall of transept

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Above the arches internally ran an open arcade in front of a wall passage; it consisted on each side of the lantern of three main arches having front piers ornamented with beaded lozenges, and containing a pair of smaller arches carried on triple columns. The whole of this arcade and the wall passage was built up when the tower was raised, but three stones of the dividing piers show on the

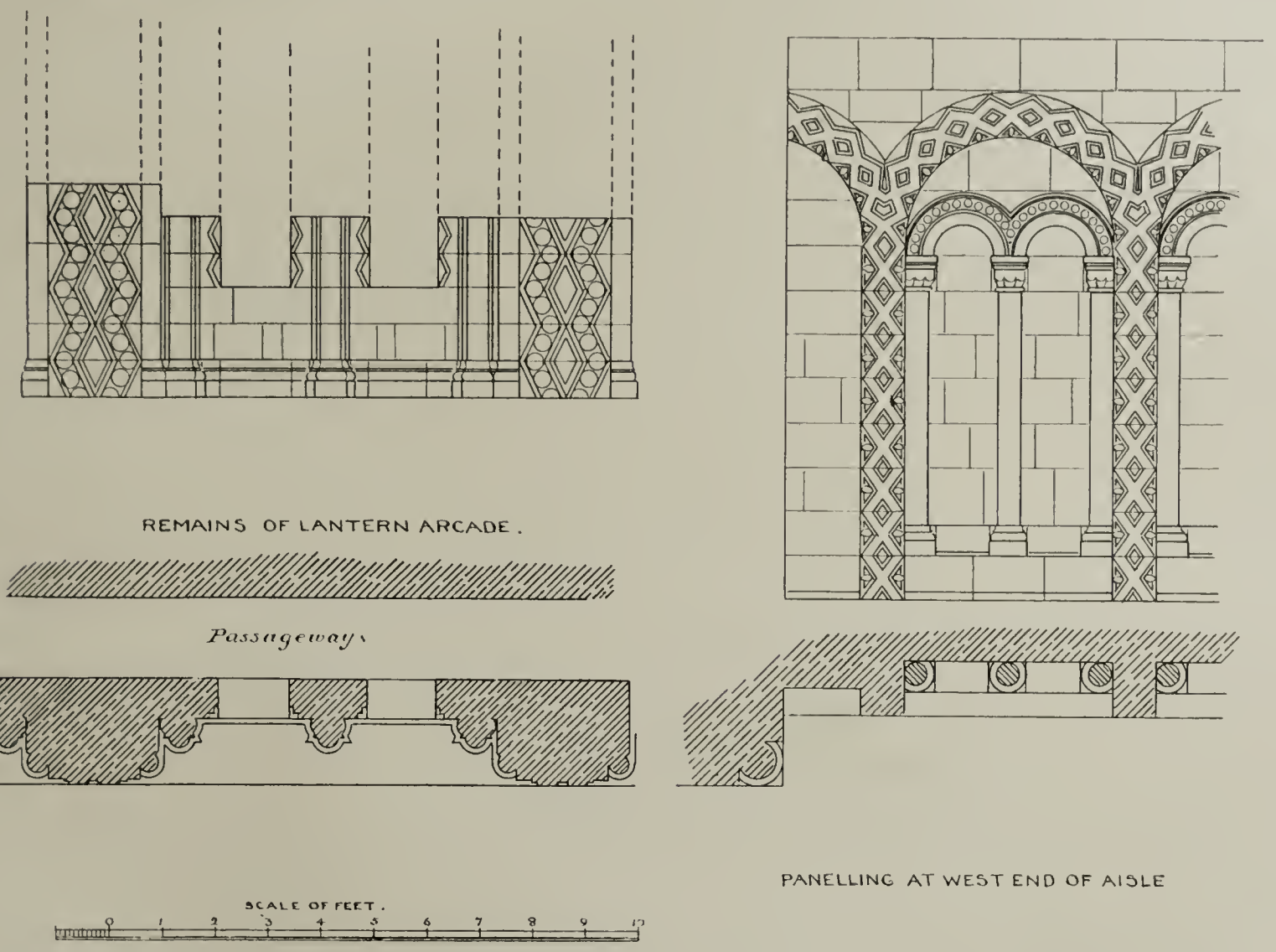


Fig. 2. Remains of lantern arcade and similar arcade at west end of nave to show suggested design.

north and west sides, and now the inner divisions have been opened out in the centre arch of the latter (fig. 2).

The tower was apparently raised towards the end of the fourteenth century, and the extra weight caused the heavy pillars to subside some 9 in. At the period when the lantern was done away with vaulting springers were inserted in each angle, and wall ribs were put at the same time as far as the dividing piers of the old lantern. These were afterwards completed to a different section, and a lierne vault with large bosses added.

A high spire was added to the tower in later times, apparently formed of wood and lead, and this is what Leland records[1] to have fallen *in hominum*

[1] *Supra*, p. 404.

memoria. If it fell before the Suppression it did little damage, as the church was standing complete when the *Valor* was taken in 1534, and it is unlikely Leland would have used the expression *in hominum memoria* if it had fallen afterwards or within two years of his visit. Over a hundred years later the memory of the spire and its fall was still fresh in the countryside, for Aubrey tells that

> Hughes of Wootton Basset saies that the steeple of Malmesbury Abbey was as high almost as Paule's and that when the steeple fell the ball of it fell as far off as the Griffin.[1]

In 1634 a certain tourist visited Malmesbury and says, 'her great High Tower at the upper end of the high Altar much decay'd and ruinated, the Angle there cleane decayd.'[2] This tower was little more than the four arches as shown in the drawing in the *Monasticon* of twenty-one years later. The weak angle, which was the south-east, as already shown, fell in 1660, bringing down the east and south arches, and in this condition it remains to-day.

There were nine bells in the two towers at the Suppression, estimated to weigh 15 cwt.,[3] and Aubrey says that in the central tower 'was a great Bell, called St. Aldhelm's Bell, which was rung when it did thunder and lighten to send the tempest from the Town into the Country'.[4] Brown Willis records

> that the Steeples were replenished with several Bells, no less than ten, as the Inhabitants informed me, hanging together in the middle Tower and two in the western one. On one of them was this Inscription:
>
> Elysiam coeli nunquam conscendit ad aulam,
> Qui furat hanc nolam Aldelmi sede beati.
>
> But, however, this Inscription did not protect either this or any other of the Bells from Sacrilege. For there are now none left belonging to the Abbey-Church.[5]

When the nave was made into the parish church the west arch of the crossing was walled up, and a buttress was built in the middle to strengthen the work.

The nave was of nine bays, 122 ft. in length, and had aisles; the total width is 69 ft. The first six bays remain complete, together with the remaining bays of the south aisle.

Each bay consists of three stages: the main arcade, the triforium, and the clearstory. The main arcade has short cylindrical columns 5 ft. in diameter, with moulded bases and scalloped capitals, surmounted by slightly pointed arches of three orders with a billeted label ornamented with dragon-headed terminals, and a most unusual feature, a grotesque head at the top biting the apex

[1] *Wiltshire Collections*, p. 256.
[2] *Graphic and Historical Illustrator*, E. W. Brayley (London, 1834), p. 411.
[3] See Appendix II.
[4] *Wiltshire Collections*, p. 255.
[5] *An History of the Mitred Parliamentary Abbies*, Brown Willis (London, 1718), i. 136.

of the label. From the capitals start the vaulting shafts, consisting of three half-rolls with fillets between.

Above the arcade is a deep splayed string-course, which was ornamented with a Greek key pattern on the splay and continued round the vaulting shafts.[1]

The triforium has in each bay a single round arch, slightly depressed, containing four small arches, except in the easternmost bay,[2] where there are only three. The main arch is of three members, of which the middle is ornamented with the chevrons set square, and is supported on moulded jambs having a detached column in each and continuous scalloped capitals. The smaller arches are semicircular and moulded, and are supported on monolithic columns having square cushion capitals. The jambs of the triforium are in many cases set crookedly by carelessness, not intentionally. The vaulting shaft continues through this stage. Above the triforium is a plain splayed string-course, over which internally all sign of the Norman work ceases, though up above the present vaulting the Norman roof shafts continue to the top of the walls in the three eastern bays.

Externally the original clearstory wall remains in the first three bays from the crossing. The bays were separated from each other by narrow pilasters having columns in the angles, and each contained a large round-headed window. The jambs and arches of the windows have been removed by later work, but on the wall face surrounding them are round plaques 19½ in. in diameter, four up each jamb and seven round the arch (fig. 3). This feature is without parallel in this country, though the plaques themselves are precisely similar to some in the spandrils of the west doorway of Kenilworth Church. The plaques surrounding Urban's arch at Llandaff are somewhat similar but smaller, and do not follow down the jambs. The aisle bays internally are separated by a group of three columns, with cushion capitals to take the cross and diagonal ribs of the vault, which still remains complete. The former is a pointed arch of one order unmoulded, and the latter are semicircular and moulded to the same section as one of the innermost members of the main arcade. There is a wall arcade of three round arches with a bead worked on the angle in each bay, having detached columns with cushion capitals and moulded bases, and resting on a stone seat. Over these is a string-course having zigzags worked on the face and chamfer alternately. Above this are the aisle windows, semicircular, with deep splays and small columns to the internal angles.

[1] Beyond the rood-screen westward this string has had the ornament cut off in monastic times and formed into a plain chamfered course.

[2] This bay was built up solid apparently in the fourteenth century to give extra abutment to the tower, and is so shown on an old drawing. The blocking was removed in 1836 at the time when both triforiums were built up for warmth.

Externally the bays are divided by pilasters with shafted angles finished at the top with beasts' heads swallowing the shaft, and at the bottom with moulded bases. The aisle windows are semicircular, with chamfered labels, and have small columns in the jambs with capitals and bases as on the inside. Under the windows is an arcade of interlacing arches resting on short moulded columns with scalloped capitals and finished by a double chamfered plinth.

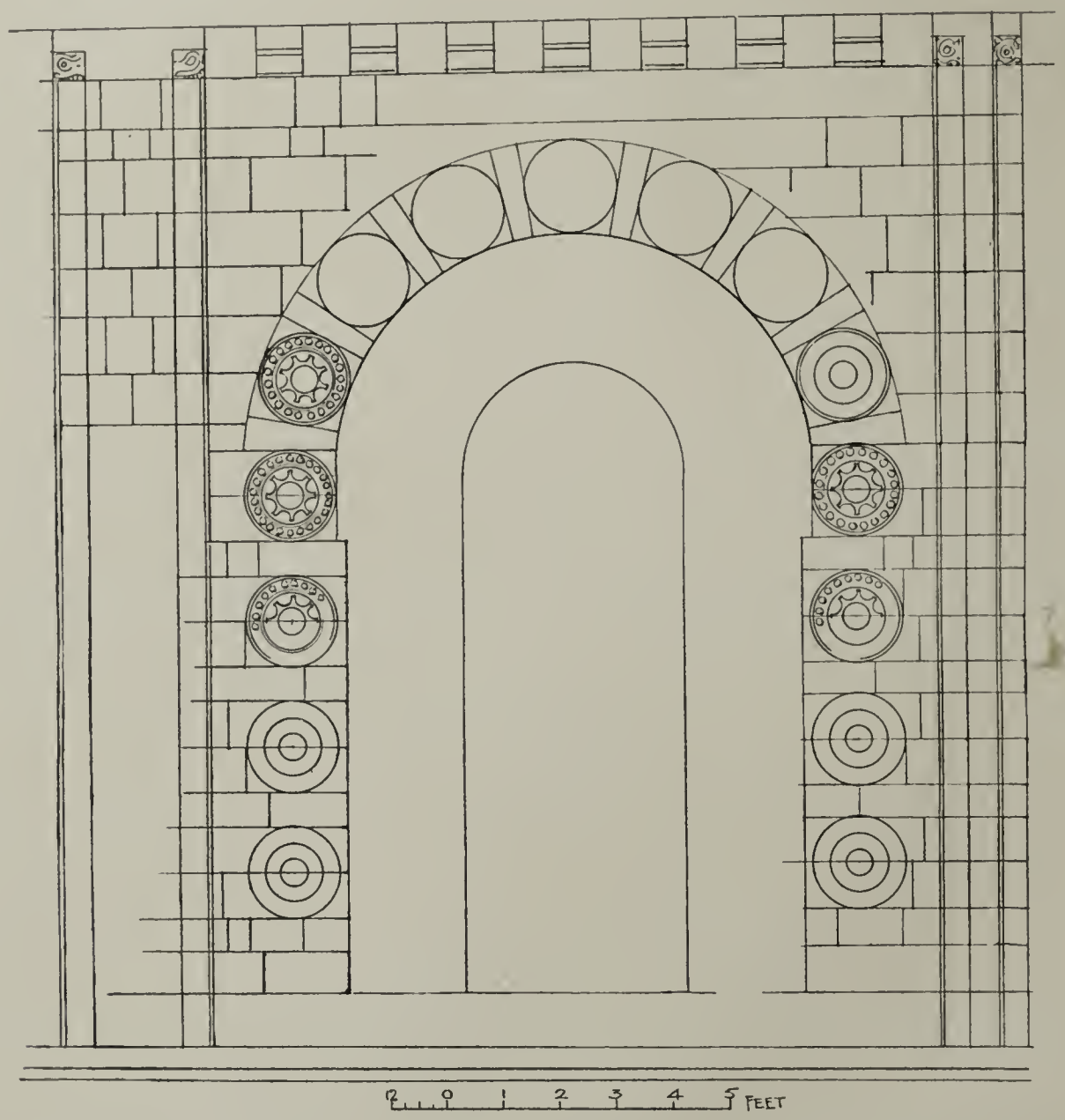


Fig. 3. Elevation of Norman clearstory windows: nothing remains to indicate the arrangements of the inner members.

On the north side, where was the cloister, the aisle windows are similar in character to those on the south, but the sills are kept much higher so as to clear the cloister roof. In the first bay was the processional doorway by which the convent gained the church, and, though now blocked, the original Norman arch still shows. On this side it will be seen that the eastern bay of the wall arcade has been moulded, whereas the remainder is left with plain square



Fig. 1. Buttresses and pinnacles of nave, before repair



Fig. 2. The three eastern bays of nave

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arches. The string-course above is alike throughout, and has a zigzag on the splayed face.

Early in the fourteenth century the clearstory stage of the nave was remodelled, owing to the desire to vault this part of the church in place of the old timber ceiling.

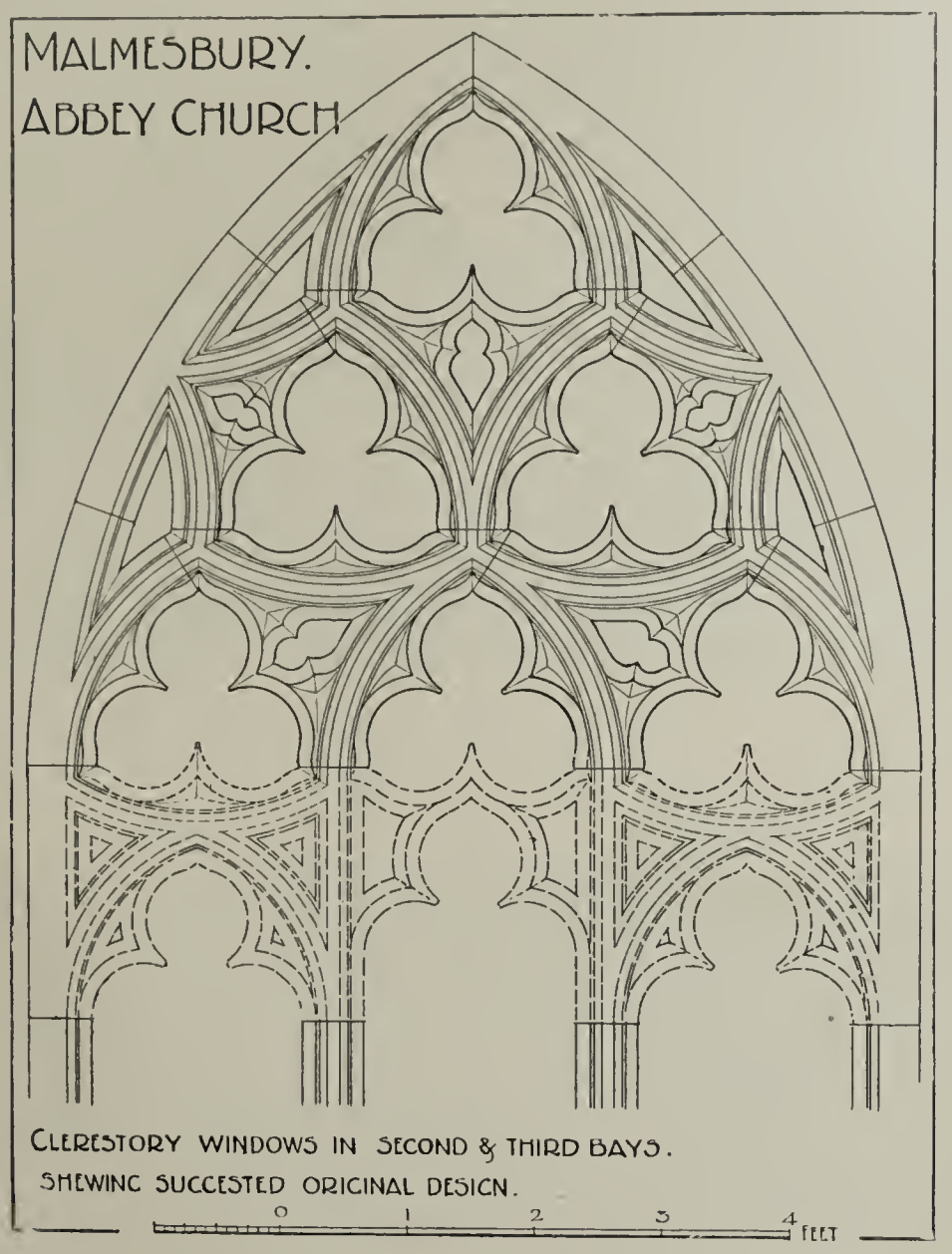


Fig. 4. Clearstory window: suggested design.

In the first bay from the east a tall two-light window was inserted within the Norman window and the wall passage built up solid.[1] In the next two bays three-light windows were inserted, but the wall passage was allowed to remain. The tracery of these windows was at first designed with the springing some 23 in. lower than at present, and the large trefoils were six in number

[1] The small size of these windows and the doing away of the wall passage were to give additional support to the tower.

with little cusped openings pointing to the middle, and were finished with trefoiled heads to the lights (fig. 4).[1]

When the work had proceeded to this point apparently more money was forthcoming, for in the remaining bays up to the west end the Norman work was entirely taken down, and the clearstory was built afresh from the string-course over the triforium. The windows of this part are of one design throughout, three lights with tracery of three trefoils in the heads and with one small cusped opening to each trefoil. After these windows had been built the lower part of the tracery of the second and third bays was cut out and a curved rib to form the inner half of the outer lights was placed across the original little cusped opening so as to make all the windows uniform.[2]

The vaulting springs from carved capitals in line with the string-course over the triforium, and consists of cross, diagonal, and apex ribs, with liernes from the apex of the cross ribs taken part way down the diagonals and up again to the apex of the wall ribs, all having large leafwork bosses at the intersections.

To support the vault externally bold flying buttresses were added across the aisles springing from piers built upon the aisle walls. These piers have gabletted fronts and leafwork terminals, of which the third on the north is the only original one left, surmounted by tall square pinnacles with battlemented tops and tall plain spirelets.[3] All the flyers are alike except the easternmost pair. This is of thinner and poorer design, and appears to have been put up later to balance the others. The builders of the vault in the first place seem to have trusted to the original walls to take its thrust, and quite rightly, for it was found when these flyers were repaired that none was taking any pressure.

The clearstory wall, on the south side, is finished by an openwork trefoiled parapet of running pattern carried on a projecting moulded cornice, in which is a stone spout over each flyer. The tops of the flyers, on the south side only, are hollowed to take the water from the spouts, a function they still perform, though now the spouts are fitted with down pipes which are carried in half pipes down the hollows. On the north side is a similar cornice and spouts, but the parapet is quite plain, and the present weathering is modern.

The south aisle is finished like the clearstory with an openwork parapet and projecting cornice, and has spouts for water over each buttress. The first buttress was renewed when the parapet was added, and has the shaft of a small

[1] The great north window of Exeter Cathedral consists of seven lights, of which the outer three are arranged so exactly like those at Malmesbury that the same hand seems to have been employed on both works. The Exeter window was erected in 1280.

[2] In the second window on the south some of the added ribs fell out, and the rest were removed to show the original design, but in the third bay they remain as altered.

[3] The terminals of these had all gone, save the easternmost on the south side, but new ones were added in 1900.



Fig. 1. Interior of nave, north side



Fig. 2. Interior of nave, south side

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pinnacle set diagonally running up from it through the parapet. Probably it was intended to treat the buttresses at each bay in this manner, but the scheme was abandoned. The second and third bays, in order to give extra light to the retro-quire, have had a large window inserted in each.

The original wall arcade was removed inside and out, as the sills are much below the Norman ones. The windows are each of three lights of peculiar design, having a large opening in the head evidently to contain seraphim. The jambs externally are plain splays, and the arches of two chamfered members. Internally there is a moulded member following the tracery, and a wide splay back to the vaulting shafts. These windows have been filled with inferior modern glass.

In the fourth bay of the north aisle, which was a small chapel, a large three-light window was placed in the fourteenth century, having its head within a small gable above the aisle gable. The vaulting inside is ingeniously arranged, having had the field of the northern quarter of the original vault removed and a new ribbed vault thrown off the old diagonal to clear the new window. The north aisle was capped by cornice and parapet similar to the clearstory above.

In the first, fourth, fifth, and last bays of the south aisle the windows have been divided by a mullion with cusped lights and a quatrefoil in the head put in towards the end of the fourteenth century. The eighth bay was blocked when the porch was cased, but the window was again opened out when the tracery was inserted in the other windows and similar tracery put to this. All the windows on the north side except the fourth have similar inserted tracery. In the easternmost window are preserved some fragments of fourteenth-century grisaille, the only vestige of old glass that remains; the rest seems to have been destroyed in the Rebellion. 'Mr. Weekes of the Royal Society remembers curious painted glass windows before the Warres in the Abbey-Church.'[1]

Projecting from the seventh bay is the great south porch, which has been the main entrance to the church from the time it was built. Externally the walls have been cased with later work, but the magnificent arch of entrance, the interior of the porch, and the inner doorway remain much as the Norman builders left them. The entrance arch is of no less than eight members, unbroken between jambs and arch, and each is richly carved. The outermost, the third, fifth, and innermost members are decorated with conventional leafwork, the seventh member has beaded lozenges interlocking each other at the angles. The second, fourth, and sixth members are larger than the others, quarter round on plan, and are divided into pointed oval panelssculptured with figure subjects. Those in the arch are from Bible story, beginning with the creation of man on

[1] *Wiltshire Collections*, p. 257.

the left side of the sixth member, on which are eleven panels. On the arch of the fourth member are fourteen panels. On the arch of the second member are thirteen panels, beginning with the Annunciation and ending with the descent of the Holy Spirit at Whitsun. In the jambs of this order are four panels on either side containing an erect figure overcoming a prostrate one, which, though much mutilated, no doubt represent the Virtues overcoming the Vices. In each jamb of the other sculptured members are eight round panels, thirty-two in all, and these are much defaced, and the subjects of those that do remain are not distinctive.

The porch is vaulted with bold three-quarter round diagonal ribs carried by detached columns in each angle, having scalloped capitals. All the vault except the first springing stones of the ribs is modern, having been erected in 1905 in place of an unsightly brick barrel. On each side wall are arcades of four arches, carved with a double row of very small zigzags on the face and another on the soffit, supported on scalloped capitals and detached columns, of which the angle ones remain, but the others are lost. There is a stone seat on either side, but at a higher level than the original ones, upon which the arcade would rest.

In the spandrils of the vault, on either side of the porch, are two groups of six seated figures with a flying angel above. It has been suggested that this work, which is on a large scale and of rude execution, is of earlier date than the porch itself; but this theory will not hold, for, apart from the character of the figures, which is identical with those of the entrance arch, the carving has been executed in position upon the ordinary ashlar facing. There is no doubt that the figures represent the twelve apostles, but none has a distinctive attribute except the northernmost on the west side, who holds keys to indicate St. Peter. Opposite St. Peter is probably St. Paul,[1] holding a book, and it is noteworthy that only three other figures hold books, so that these may be identified as St. Matthew, St. James, and St. John, the other apostolic writers.

The inner doorway has three members with continuous jambs and arch, all richly carved with conventional foliage. The head is filled with a tympanum, having flat soffit and radiating joints, upon which is a seated figure of our Lord within a vesica held up by a pair of flying angels. The door is of two valves with plain covering strips to the joints, and has plain strap hinges. The lower part of the west half is formed into a wicket with rounded head, and the whole seems to date from the end of the sixteenth century.

In the north-east angle of the porch is a roughly inserted recess for the holy-water stock of late fifteenth-century date.

In the fourteenth century, when so much work was done to the nave, the

[1] So usually included with the Twelve in place of Mathias in medieval carvings.



Fig. 1. South porch, outer arch



Fig. 2. West end, before repairs

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walls of the porch were thickened to no less than 10 ft., large double buttresses were put to the southern angles, and a new two-membered arch without capitals was added on the south side in front of the original Norman one. The old mask terminals from the original label have been reused in the new arch. The casing is carried up to the top of the aisle walls, where it is finished with the same moulded cornice and openwork parapet as to the aisles. The water-shoots in this case are carved into bold gargoyles, of which there are two on the south and one on either of the other faces. The buttresses have at the level of the arch springing a deep string-course, above which are sets-off of five courses, and the tops are finished with sets-off of eleven courses to the under-side of the cornice.

In the sixth bay of the aisle is an inserted doorway of the fifteenth century, containing the original door with tracery in the head. This gives on to a vice of the fourteenth century, which blocks up the aisle window and leads to the room over the porch. This is entered through a low pointed segmental-headed doorway, and has windows in each face. On the south is a two-light window with square head, and in the east and west sides are single-light windows,[1] all having flat oak lintels on the inside. In the north wall is a small loop looking into the church, which had a segmental rear arch.

The object of the thickening of the walls of the porch may not be certain, but considering the bold buttresses, quite out of proportion to the thrust of the vault, and the awkward way they stop at the top, there is little doubt it was intended to carry it up as a square tower, the idea being abandoned when it was determined to build one over the west end of the nave. A tower in this position does not now exist in any of our large churches, but it occurs at the priory churches of Edington and Bruton, and did exist at St. Radigund's, near Dover, and at Walsingham.

The original west front was a prototype of Salisbury, being a great screen wall flanked by turrets and covered with wall panelling. Of this screen the portion covering the south aisle remains to nearly the height of the main wall of the church, and is divided into two stages. The lowest stage is occupied by an interlacing arcade like that in the south aisle and transept; the second stage is unpanelled, and has a round-headed window with a zigzag arch and pelleted label, scalloped capitals, and jamb shafts; the third stage is separated from the last by a billet-ornamented string-course, and is divided into two whole and two half panels with continuous jambs and arches ornamented with double zigzag, of which the two middle arches are subdivided into two small arches ornamented with pellets and supported on detached columns with scalloped capitals.

[1] The side windows were built up solid, but have recently been opened up and the outer jambs restored.

Above this is a very richly corded string-course. The fifth stage is divided into five plain beaded panels with arched heads but no capitals. Above are two sets-off and a plain face of wall apparently of later date.

The first, second, and third strings pass round the pilaster opposite the main wall, which contains a vice from the aisle roof upwards to the clearstory passage.

On the south-west angle turret the first and second strings are continuous, and between them are two plain beaded panels on each face, having on the west face a sub-arch at a lower level, like those in the transept passage. Above the second string is an arcade of interlacing arches on detached columns with scalloped capitals, surmounted by the corded string-course of the third stage of the aisle, but at a higher level. Above are the remains of a richly panelled stage, having twisted columns at the angles, continuous lozenge bands on either side, and then an equal number of panels to those below having square pillars with beaded edges and hollows with pellets on the face. This stage is continued on the east face of the turret.

The vice contained in the turret starts from the aisle of the church and continues to the triforium level, where is a wall passage northward, off which goes the vice already mentioned to the clearstory, and a greeze ascends to the sill of the west window. The original vice continues upwards, though of smaller radius, and apparently led to the top of the west front, from which the nave gutters could be gained.

The central portion of the original front has been destroyed save for the southern half of the lowest stage. This has the continuation of the interlacing arcade and the south jamb and part of the arch of the west doorway.

The doorway consisted of five members, of which the outer, the third, and fifth are carved with leafwork, and are continuous in arch and jamb. The second and fourth members were intended to have been carved like the south doorway, and the outer member was so treated, but the fourth member is still in block. Both these members are carried on jamb shafts having carved capitals and square abaci.

Above the doorway is a band of plain ashlar surmounted by a moulded string-course of the end of the fourteenth century, and at 8 ft. from the south pilaster is the jamb of the great window of the same date, with its springer at 24 ft. above the sill. The window seems to have been of eight lights, and had four lines of transoms with cusped heads.

When this window was inserted a great square tower was built above the two western bays of the nave in a similar way to that of the same date at Hereford.[1] The west, north, and south sides were carried upon the old Norman

[1] Shrewsbury Abbey tower, of similar date, was built from the ground with solid side walls.



Fig. 1. South porch, inner doorway before repairs



Fig. 2. South porch, detail of east side of outer arch

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walls, and a great arch was thrown across the nave, above the vaulting, to take the east side. The springer of this arch remains on the south, and is of three plain members.

The two columns and the piers of the triforium and clearstory above, which carried this arch, were from the first insufficient for the additional weight of the tower, and to remedy this as far as possible various devices were adopted. Flying arches were inserted across the clearstory window and triforium arch of the third bay from the west, and the main arch of the arcade was underbuilt. The small arches of the triforium of the two western bays were built up solid, but nothing remains to show if any corresponding strengthening was effected in the clearstory. In the opposite direction, to take the thrust of the east arch, an arch was placed beneath the vaulting in the aisle, and above, outside the earlier flying buttresses, an extra pier was built to carry additional flyers, the lowest of which still remains on the south. These buttresses had the support of the west wall of the porch on the south, and the west wall of the cloister on the north.

This tower contained two of the nine bells which hung in the steeples at the Suppression, and was standing at Leland's visit. It must, however, have fallen very shortly after, though no record exists of the calamity. The east side was from the first an insecure structure, and the removal of the west wall of the cloister doubtless started the collapse. Certain it is that the tower fell northward, destroying three bays of the main wall of the nave with the aisle, and bringing down in its fall no less than five bays of the main vault. Instead of any attempt being made to re-erect the fallen building, a solid wall was erected across the church in line with the sixth pair of piers, having bold buttresses opposite the main walls, and banded by string-courses in line with the springers of the main arcade and main vaulting. In the south buttress, to light the aisle, is a small square-headed window. The wall was pierced by a large pointed window, round which the upper string continues as a label. What the original filling of this was it is impossible to say, as in 1836 the present tracery was inserted and took the place of plain square mullions and transoms, apparently of wood.

The south aisle had a blocking wall put under the strengthening arch on the west side of the seventh bay, and also in the small pieces of the arcade beyond the new buttress.

The north aisle had a thick wall built across it opposite both the fifth and sixth pier, and these are carried up nearly to the springer of the clearstory windows. When it is remembered that the main vault was destroyed and no effort made to re-erect it, the use of these great buttress walls is difficult to explain, unless they show the intention, afterwards abandoned, of building here a small tower to take the place of the fallen one. In the bay thus cut off is an inserted doorway of the date of the foregoing work.

Over the six western bays of the south aisle a low building was added in the fifteenth century, having an almost flat roof, the inserted weather-course for which remains on the piers of the buttresses. It was reached by a continuation of the vice to the room over the porch, and had a second entrance through the opening of access, at the west end, to the space under the aisle roof. The building is shown in the view in the first *Monasticon*, and had square windows in its two eastern bays. It was removed before 1733, when the brothers Buck made their drawing. The use of this building is not certain, one suggestion being that it was the library, as that building occupied the space over the south aisle at Norwich and Worcester, but in those cases the cloister was on the south. Also, as the 'lyberary' is coupled with the frater, in the grant to Stump, it is unlikely to have been this building, which is as far from the frater as it is possible to be placed. It is now suggested, but with diffidence, that it was for one of the numerous schools in connexion with a great Benedictine house, and, as the projecting place for the nave organs opened from it, the building may have been for the song school, the master thereof being the organist.

Great abbey churches were, except in a few cases, built for the exclusive use of the convent, and not for congregational purposes; neither were they or any church ever intended to impress the visitor with an unbroken vista from end to end. After the drastic sweepings which all our great churches have undergone, especially at the hands of so-called restorers of modern days, it is difficult to realize what the effect of one must have been with all the chapels, altars, screens, and fittings complete. Fortunately at Malmesbury there still remain indications of some of the internal fittings which enable the principal arrangements to be traced.

Under the western arch of the crossing is a solid stone screen, capped by a cornice bearing the badges of Henry VII with the royal arms in the middle over a doorway which led into the quire.

The quire was beneath the crossing and one bay of the presbytery, and the stalls had canopies which were supported at the backs by a beam let into the crossing piers.

Just in front of the first pair of pillars in the nave was an openwork stone screen across the full width of the church, and the portions in the aisles still remain. Between this screen and that already described was a loft or gallery known as the *pulpitum*, from which the gospels and epistles were sung on holy days, and it generally held a pair of organs for the quire services.

At the third pair of pillars was another cross screen, above which was the beam to carry the great rood. In front of this was the nave altar, with a doorway in the screen on either side. In the triforium just above is a stone box-like projection, which was apparently built to hold the organs for the nave altar



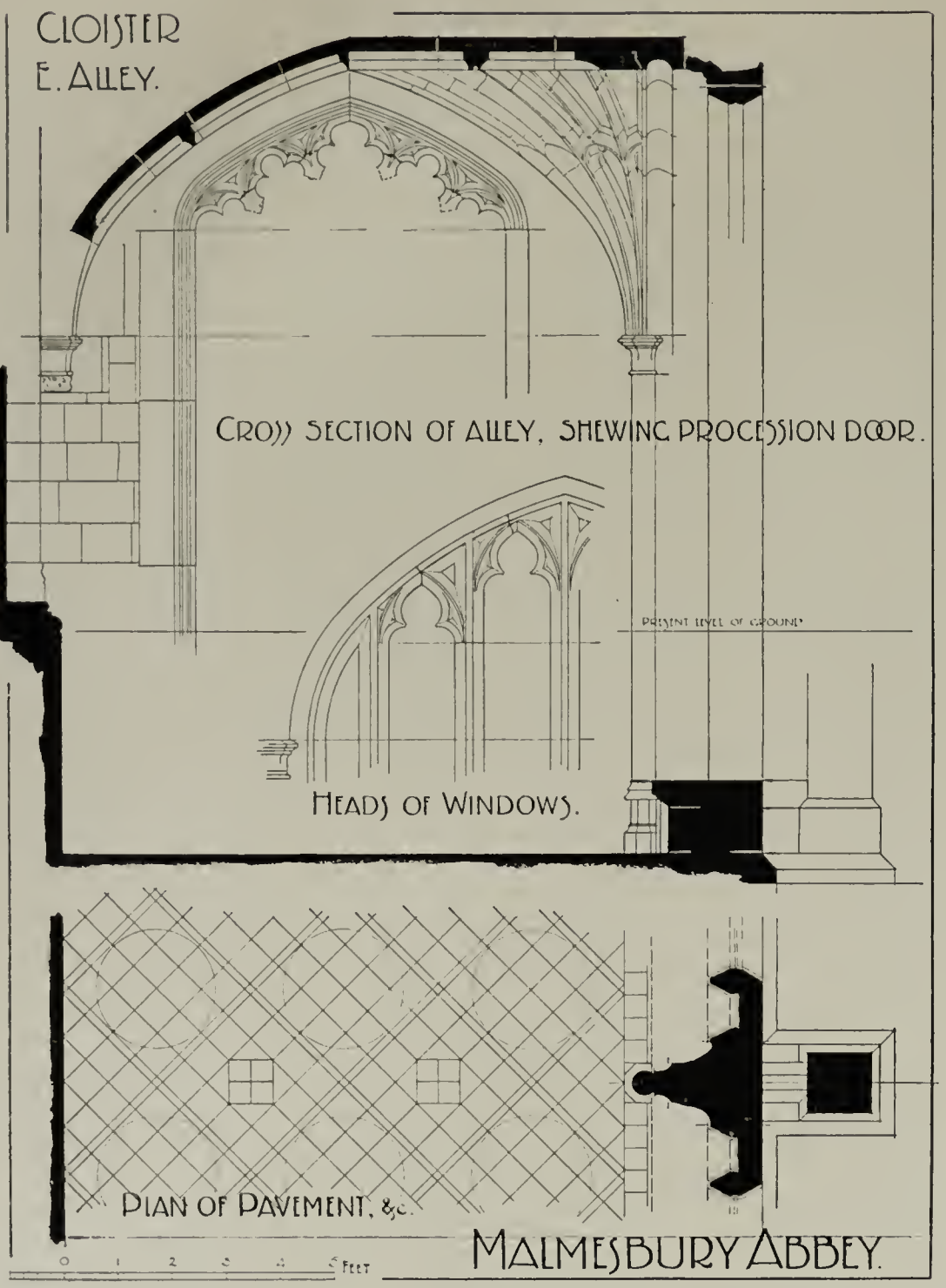
Fig. 1. South porch, apostles on east side



Fig. 2. South porch, apostles on west side

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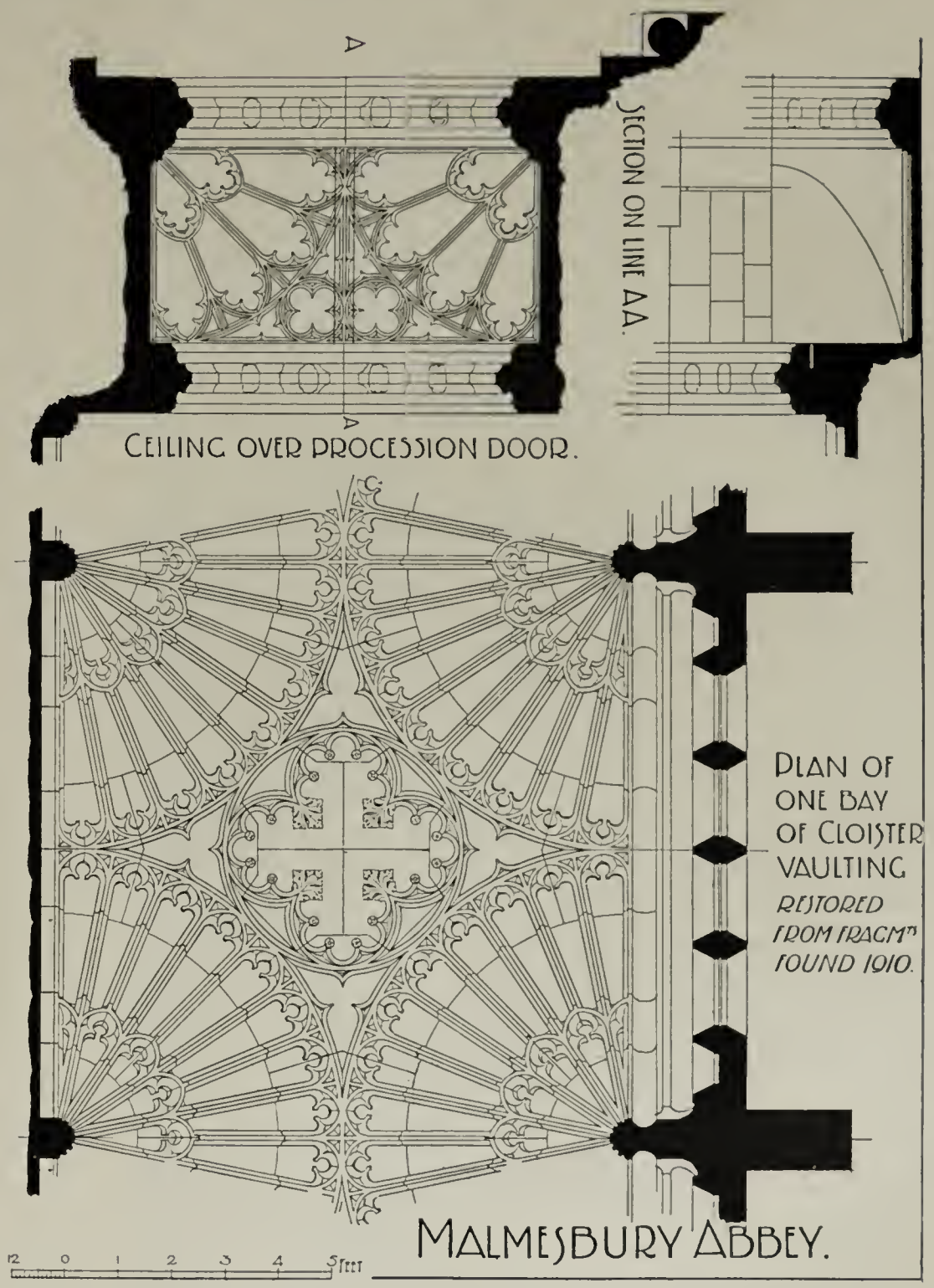


Fig. 5. Sections and plan of cloister restored from remains found in 1910.

services, and not, as usually supposed, to contain a patient watcher, who could see little or nothing beyond a detailed elevation of the nave wall opposite.

The fourth bay of the aisles on both sides was parted off by screens to form chapels flanking the nave altar.

Between the rood-screen and the *pulpitum* was a space called the *retro-quire*, where at Durham were seats 'where men dyd sytt to rest theme selves on & say their praiers and here devyne service'.[1]

Westward of the nave altar the nave and aisles were usually clear of fittings, and no indications of any now remain at Malmesbury.

Last, but not least, must be mentioned the monument called King Athelstan's. This is now placed under the first arch of the nave on the south side, and is a plain altar-tomb of the fifteenth century, supporting an effigy which has a fine canopy at the head. In the Rebellion the head of this figure was broken off by some soldiers, but was quickly mended by the inhabitants of the borough; but the new head had grown a beard in accordance with the fashion of the time.[2]

The Cloister.

The cloister in the first place was most accurately set out, being exactly 112 ft. in each direction. There would be pentises against each wall, carried on open arches with coupled columns standing on dwarf walls. The base of such a pair of columns was found used up as old material in the north-west corner of the later work, and dated from the latter part of the twelfth century.

In the fifteenth century the cloister alleys were rebuilt and covered with a fan vault after the fashion set at Gloucester. The floors were paved with pattern tiles. Of this rebuilding a considerable part of the plinths of the walls next the garth remains, together with the paving. These were exposed by excavation, and at the same time such a quantity of fragments of the vaulted ceiling was found that it is quite easy to recover the design of the alleys.

Each alley was divided into eight clear bays, and was about 11 ft. wide. The bays were separated externally by bold buttresses formed of square piers, from which flyers would rise to take the thrust of the vault, similar to those of the fourteenth century to the south aisle of the nave at Gloucester. Internally there were round columns, with moulded octagonal bases and capitals, to take the vaulting, of which the springing was $9\frac{1}{2}$ ft. above the floor. The windows had simple splayed mullions and jambs of one member contained internally in a recess, across which was a seat with splayed nosing (fig. 5).

Each bay was virtually square, and the vaulting was arranged in cones having the ribs worked on. Eight ribs started from each column and were

[1] *Rites of Durham* (Surtees Society, 1902), p. 34.

[2] *Wilts. Arch. Mag.*, viii. 39.

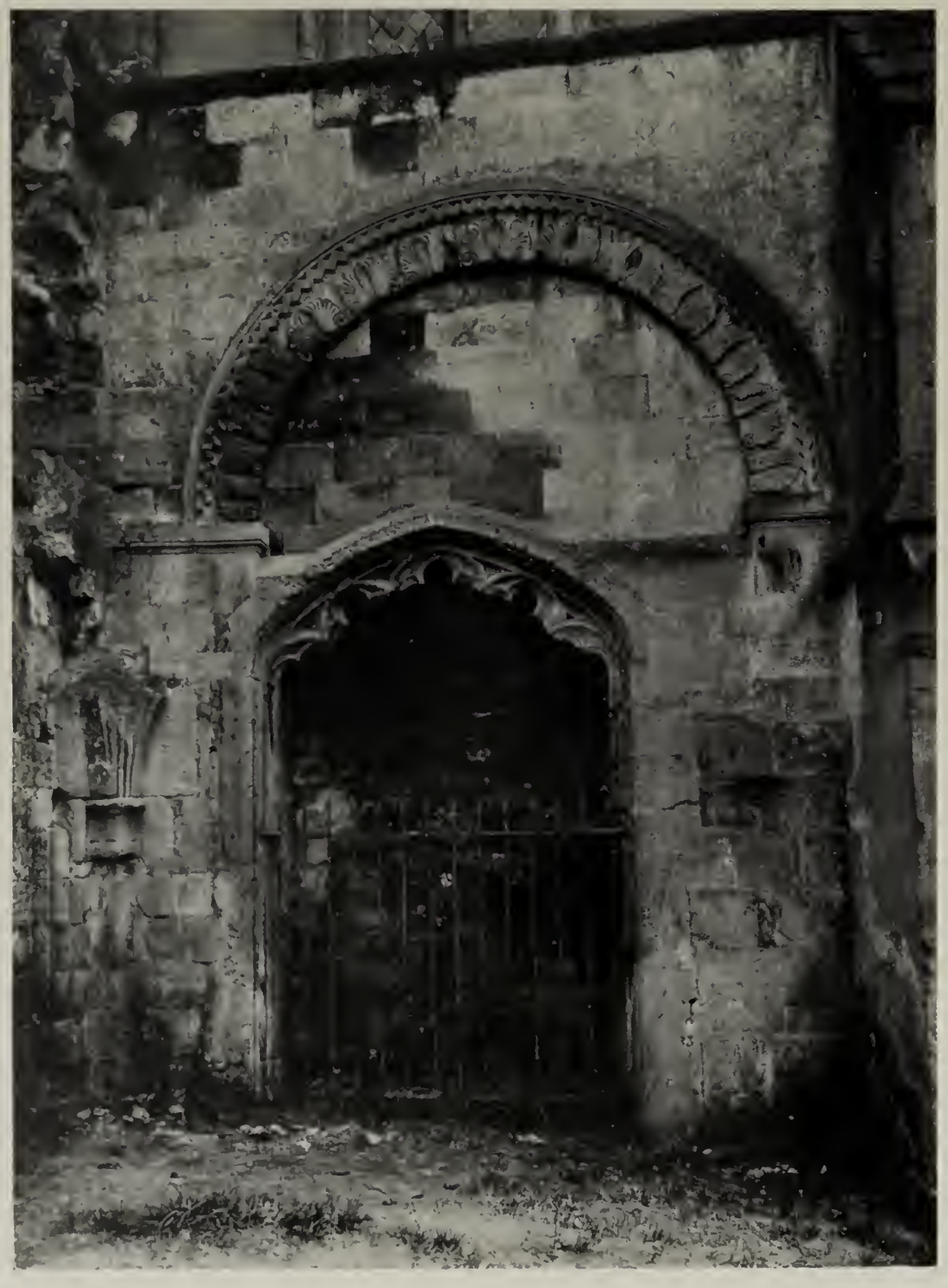


Fig. 1. Procession doorway from cloister



Fig. 2. Window of north chapel of nave

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Fig. 6. Tile pavement in east alley of cloister. $(\frac{1}{6})$

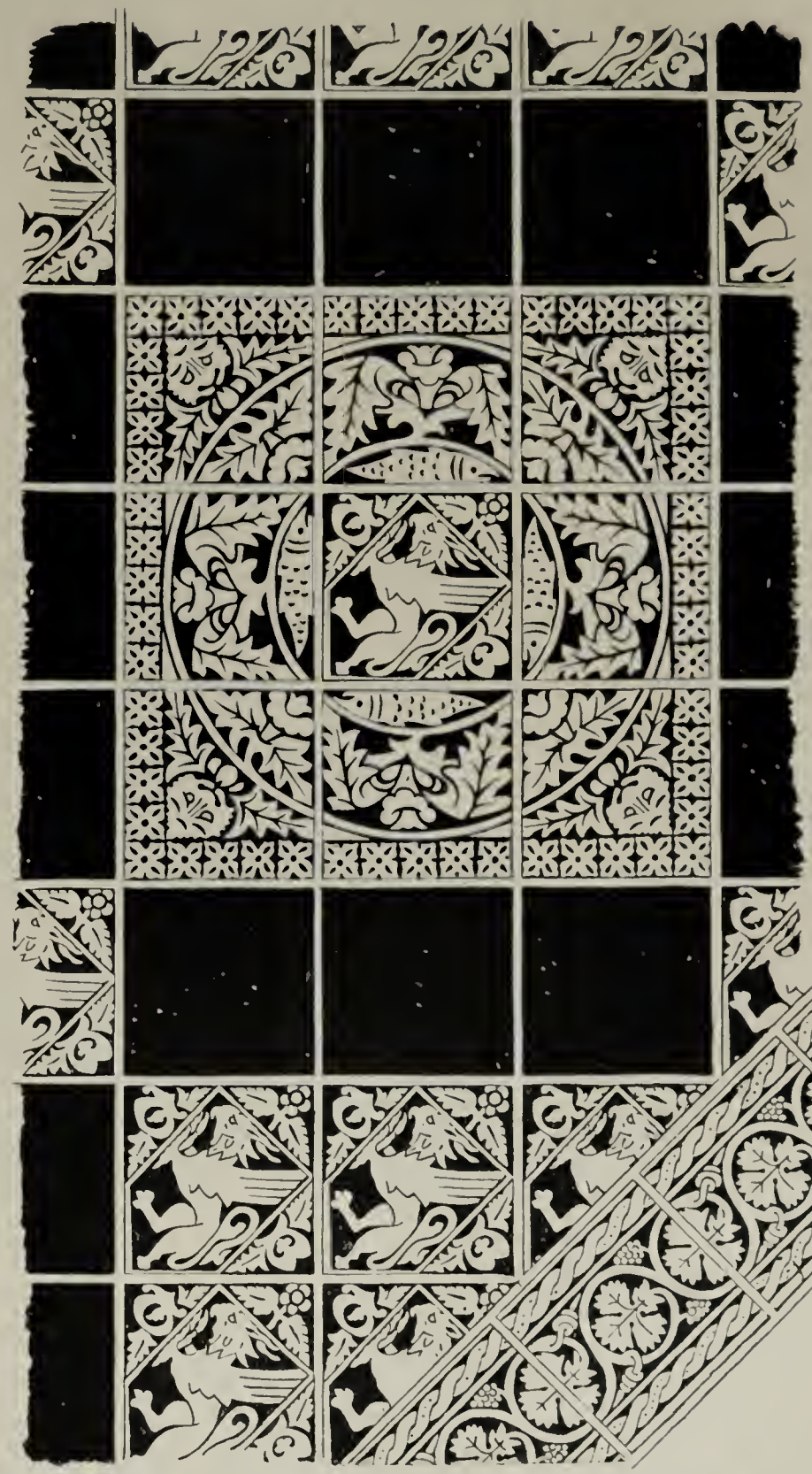


Fig. 7. Tile pavement in north alley of cloister. $(\frac{1}{6})$

doubled half-way up, and the heads of each panel were finished with trefoils. The spandrils between the cones were filled with circles containing large quatrefoils having foliated terminals and subdivided by smaller cusps, of which some had rose-like terminals and others were plain.

A fragment of the springing starting from a moulded corbel remains in the south-east angle, and the curve of the vaulting shows against the church wall. The processional doorway remains in the south-east bay, and consists of an archway on the outer face of the wall and a doorway on the inner, with a small porch between in the thickness of the aisle wall, and was made within the original processional doorway when the new cloister was built. The archway is four centred and richly feathered, but the cusp points are all broken off: the porch is covered with a small fan vault of similar design to that of the cloister, and the inner doorway was blocked after the Suppression by a wall which covers its features. A flight of steps led up from the cloister to the church through this porch-like doorway.

With the exception of Gloucester and Tewkesbury no other monastic cloister can boast such an elaborate ceiling, though that of St. Stephen's chapel in the palace of Westminster was of similar character. The pattern of the cones and spandrils at Malmesbury does not seem to have an exact parallel, but from the nature of the cusping the vault must be an early example and but little later than its rival.

The foundation of the three western bays of the north alley projected into the garth in order to support the lavatory opposite the frater door, as at Gloucester, Chester, and Christ Church, Canterbury.

The floors were laid with tiles at different periods, doubtless as the work above was completed. At the south end of the east alley a large area remained, but much damaged by the fall of the vaulting (fig. 6). The pattern was formed of squares of sixteen tiles set diagonally and separated by strips of narrow tiles. The squares were decorated with a circular band of roses surrounding four shields which met in the centre and bore the arms of Beauchamp of Warwick. The middle tiles had in all cases been replaced by tiles made purposely for the abbey bearing a griffin segreant on a shield, some with the letters W.C. and others with W.W. in the angles.

At the east end of the north alley was a patch of tiles much smaller than the last and of unusual design (fig. 7). They consist of sets of nine tiles with plain bands between. The middle tile of the set is again of different make from the others; it also bears a griffin segreant, but with the letters T.B. This set is alternated with groups of nine tiles, all composed of the griffin. The border next the garth is a fine pattern of vine leaves. Loose tiles bearing the arms of Mortimer, Beauchamp of Warwick, Berkeley, and Despenser were found in this alley.

Along the west alley was a considerable quantity of the pavement, but made up of various tiles, one group being of large tiles having four shields meeting in



Fig. 8. Tile pavement found about 1800, now in the vestry. ($\frac{1}{6}$)

the centre bearing a bend raguly. Part of this alley was evidently found at the end of the eighteenth century, for Moffat records that—

> In digging for stone in a garden adjoining the north-west end of the church, several years ago, the workmen came down upon a pavement of square stained tiles. Very

lately the spot has been re-examined and a quantity of these curious tiles discovered. They are glazed, ornamented with roses, flowers-de-luce, and heads.[1]

Some of these tiles are now preserved in the church and have borders formed of narrow tiles bearing squirrels and monkeys (fig. 8). With respect to the griffin segreant and the initials on the tiles, Aubrey relates that he could find no coat of Malmesbury Abbey, but mentions that ascribed to the abbey in King's frontispiece to Tanner (*on a chief argent a mitre and two crosiers proper over the leopards of England*), and adds 'by what authority I know not'.[2] It is suggested this is a purely fictitious coat of the sixteenth century, and that the griffin segreant was the real coat of arms of the abbey. This griffin occurs under the figure of our Lady on the thirteenth-century seal of the abbey; there was a street in Malmesbury of the same date known as Griffin's Lane; in later times there was a house called the Griffin; and in one of the foliated spandrils of the market cross is an inserted stone bearing the griffin segreant on a shield. Then come the three different patterns of the same coat of arms on the tiles in the cloister. Surely this general use of these arms in Malmesbury suggests that they were those of some influential person or body, and the only explanation of their occurrence in all these places is that they were the arms of the abbey. This being so, the initials on the tiles must be read as those of different abbats, and date the completion of various sections of the cloister, namely, W.C. for Walter de Camme, 1360-96; W.W. for Abbat William, 1423; and T.B. for Thomas Bristol, 1434-56.

Most of the main walls of the buildings round the cloister had been grubbed up, but a portion of the east wall, a fragment of the north wall towards its west end, and a length of the west wall near its north end remained.

Surrounding the cloister were the buildings required for the daily use of the convent, namely, the chapter-house, parlour, dorter, and frater, which, though not arranged on such a fixed plan as with the Cistercians, were still in a regular order of sequence. The chapter-house was always on the east side of the cloister, and the frater on the side opposite the church.

At Malmesbury the north transept overlapped the cloister some 39 ft., and next it northward would be the low passage or parlour leading to the monks' cemetery.

The Chapter-house.

The chapter-house would adjoin the parlour, and there was found a considerable length of the foundation of its north wall; nothing of the south wall was found, owing to the rock being so near the surface at that place that no founda-

[1] *The History of Malmesbury*, J. M. Moffat (Tetbury, 1805), p. 65.
[2] *Wiltshire Collections*, p. 265.

tion was required. Various fragments of Norman character were unearthed, including some vaulting ribs, and it is probable that the room was covered by a single spanned vault as at Gloucester, Reading, and other Benedictine houses. William of Colerne 'caused the chapter-house as far as the walls to be removed and again put up the whole with new timber and covered with stone and alures in the circuit of the chapter-house'.[1] Whether any work beyond a new roof and parapet was done at this period is not recorded. At the Suppression the chapter-house was covered with lead.[2]

The Dorter.

Owing to the fall of the ground some 40 ft. northward from the chapter-house, the dorter could not have occupied its usual position of a range running north and south, but must have been placed east and west parallel with the church, as at Gloucester and Winchester. It had its roof removed and covered with stone and new alures made by William of Colerne like the chapter-house.[3] Nothing whatever remains of it.

The Frater.

The frater was on the north side of the cloister, and seems to have had a subvault. A fragment of a foundation was found in the bank at 20 ft. from the cloister wall, which if it was the main north wall would cause the frater to be unusually narrow. The roof was covered with lead.[4]

There was a meat frater or misericord[5] at Malmesbury, but whether it was a distinct building as at Peterborough and Westminster, or a loft over the west end of the frater itself as at Worcester and Durham, it is impossible to say.

The Kitchen.

At the west end of the frater, as might be expected, was the convent kitchen. It was standing in part at the end of the seventeenth century, and Aubrey remarks that 'on the N.West side of the Abbey Church stand the ruines of the kitchen on four strong freestone pillars'.[6] From this it is reasonable to suppose that the chimney stood in the middle of the room over fireplaces supported on four strong pillars, and that the room itself would be square or octagonal, the surrounding walls having gone when Aubrey wrote. Abbat

[1] See Appendix I.
[2] See Appendix II.
[3] See Appendix I.
[4] See Appendix II.
[5] *Reg. Malmes.*, ii. 382.
[6] *Wiltshire Collections*, p. 260.

William of Colerne made three ovens next the convent kitchen, probably for making pastry, as he had already made the bakehouse anew.[1]

Nothing has been found to indicate if there was a range of buildings along the west side of the cloister. This occurred at Christ Church, Canterbury, Norwich, and Bardney, but was absent at Westminster, St. Augustine's, Canterbury, and Gloucester.

Part of one of the numerous buildings which stood to the west of the cloister remains incorporated with the Bell Hotel. In its north wall is a thirteenth-century window of two lights with shafted jambs. On the first floor is a fine room having a ceiling of the fifteenth century formed of deeply moulded beams, and in the north-west angle of the room is an arched doorway. There is no means of identifying this building with certainty, but it was possibly one of the guest-houses.

Eastward of the site of the dorter is the present 'Abbey House', which for the most part is 'the new dwelling house . . . . of about Edw. 6th architecture',[2] but under the northern side is a subvault, of the late thirteenth century, placed east and west. This was divided into two chambers, and had a row of columns down the middle.

The western chamber is 39 ft. long by $23\frac{1}{2}$ ft. wide, and is of four bays. The central columns and the vaulting have been destroyed, but the springers supported on moulded corbels and the wall ribs remain. The north, west, and a bay and a half of the south walls remain. The first has in each bay a tall lancet having the internal splays of rounded form on plan, presumably to take window seats. The west end and the remaining part of the south side are blank, and there is no indication of how the chamber was gained. Externally on the north side were buttresses at either end and one in the middle of its length, but all except that at the west end have been chopped off lineable with the wall. The stones of their re-entering angles alone indicate their existence.

The eastern chamber is $29\frac{1}{2}$ ft. in length, and of the same width as the other, from which it was divided by a wall 3 ft. in thickness, now destroyed. This chamber is of three bays, but has only two windows to the north, the middle bay being blank with a buttress in the middle of it and not opposite the vault springers. There were no windows in the east wall or the bay and a half which remains of the south side, and, like its companion, there is no sign of any entrance.

At the present both chambers are filled with rubbish almost to the springing of the vaulting, and are used for a brushing room and housing fuel.

Of the superstructure nothing whatever remains. There is a wall $5\frac{1}{2}$ ft. thick,

[1] See Appendix I.

[2] *Wiltshire Collections*, p. 259.

in line southward of the east end of the subvault, in which is a segmental-headed doorway of a single member. To the north of this doorway in the thickness of the wall is the pit of a gardrobe from an upper floor. Eastward from this runs a thick wall for 31 ft., having a chamfered plinth on its north face some 8 ft. below the level of the ground, but nothing could be found of the south wall of the apartment.

The style of the subvault suggests that the building was part of the infirmary built from the foundations[1] by Abbat William of Colerne, but its position adjoining the dorter indicates that its upper story was the reredorter of the monks. Both surmises may be correct, as the reredorter at Worcester, built a hundred years before, was certainly so arranged in connexion with the infirmary.

The Abbat's Lodging.

Somewhere on the east side of the precinct was the abbat's lodging, for Abbat William of Colerne recovered two messuages next the abbat's garden and planted them with vines, and made an herbarium towards the king's wall.[2] This portion of the king's wall is that which was to be repaired by the almoner, namely, from the abbat's garden to the court of the Lord John (Maudit).[3] The abbat's lodging was built by William of Colerne, who 'next the abbat's garden made a great and honest hall covered with stone, with a lesser hall towards the gable of the same hall, and of the house which was previously the hall he made an ordinary camera. Next the same hall he caused to be made a kitchen, and of the larder he rebuilt the walls and strengthened the beams, and covered it with stone.'[4]

At the Suppression the abbat's lodging was covered with lead,[5] and was to remain undefaced. It consisted of 'the late abbotts lodginge and the new lodging adyoynynge, with kytchin, larder, Buttery, Pantery and houses of Offyce w^t^ lodgyngis theruppon buyldyd perteynynge to the same. The Abbotts Stable w^t^ the wolle house, the Gate and houses over the same enclosinge the quadrante of the seyde Buyldynges.'[6] And the custody of these was granted to Sir Edward Baynton of Bromham.[7]

In conclusion, the writer cannot close this paper without expressing his indebtedness to the Lord Bishop of Bristol for hearty co-operation and sympathy at all times with his work both professionally and archaeologically; to Mr. E. S. Mackirdy, for ready permission and very material help toward the excavations

[1] See Appendix I.
[2] *Ibid.*
[3] *Reg. Malmes.*, i. 136.
[4] See Appendix I.
[5] See Appendix II.
[6] See Appendix IV.
[7] See Appendix II.

of the cloister, and access at all times to the rest of his property; to the Vicar of Malmesbury, the Rev. Canon C. D. H. McMillan, and to Mr. J. Moore, for generous permission to examine the respective parts of the abbey in their charge; to Mr. W. S. Brakspear, for the loan of the negatives for plates XLVII, 1, XLVIII, 1 and 2, L, 1, LI, 1 and 2, LII, 1 and 2, LIII, 1, and LV, 1 and 2; and last, but not least, to his old friend Dr. W. H. St. John Hope, for the transcript of the documents contained in the Appendices II, III, and IV, and various suggestions as to the ritual arrangements of the church.

APPENDIX I

REGISTRUM MALMESBURIENSE. (Rolls Series, 1880.) ii. 365.

WILLIAM COLERNE.

De edificiis factis infra abbathiam et per diversa maneria.

Juxta gardinum abbatis fecit aulam magnam et honestam, et aliam aulam minorem ad gabulum ejusdem aulae, petra coopertam.

Et de domo quae prius aula fuit, cameram ordinari fecit.

Et juxta eandem aulam fieri fecit unam coquinam.

Et lardarium fecit renovari muris, et tignis augmentari, et petra cooperiri.

Et cum idem abbas comparaverat de Radulpho de Porta et de uxore quondam Thurstani le Brasur, mesuagia eorum cum curtillagiis juxta gardinum abbatis jacentibus, idem abbas in ipsa placea fecit quandam vineam plantari, et eam circumquaque muro lapideo includi.

Fecit etiam juxta eandem vineam unum herbarium versus murum regium.

Fecit etiam in gardino abbatis vineas et pomeria ubique plantari.

Fecit etiam de mercata quandam placeam capi ad carpentriam, quam circumquaque muro lapideo fecit includi.

Fecitque juxta eandem carpentriam duas domos.

Fecit etiam infirmariam tignis et furcis et aliquantulum muro renovari et petra cooperiri.

Postea dormitorium usque ad muros fecit prosterni, et super eosdem muros in utraque parte quasdem aluras fecit construi, et novo maeremio cum tignis ante existentibus renovari, et petra cooperiri.

Fecit etiam capitulum usque ad muros prosterni, et iterum novo maeremio ex toto erigi et petra cooperiri, et aluras in circuitu capituli.

Postea in aula hospitium tres fieri fecit fenestras.

Postea unum gernerium fieri fecit juxta pistrinum, et domum quae aliquando gernerium fuit, addidit ad cellarium.

Vetus etiam bracinum usque ad terram fecit prosterni, et illud novis muris et novo maeremio construi fecit et relevari.

In occidentali autem parte ejusdem bracini, fecit unam domum ad equos longae carectae reponendos.

Fabricam etiam novam fecit et eandem petra fecit cooperiri.

A carcere etiam usque ad stabulum sacristae fieri fecit unam domum, cujus vero primam partem assignavit ad pauperes, et alteram partem ad stabulum equorum.

Juxta stabulum hospitium, unum domum fecit ad equos reponendos.

Fecitque molendinum.

Et capellam Sancti Aldhelmi in gardino.

Fecit etiam tres furnos juxta coquinam conventus.

Et cumulum de camera abbatis de novo construi.

Et infirmitorium a fundamento aedificari.

APPENDIX II

AUGMENTATION OFFICE MISCELLANEOUS BOOK 494, fols. 34–44.

Malmesbury.
Surrend[d] 15 Dec. 31 H. VIII (1539).
Clear yearly value £830. 15½*d.*
Pensions to Abbot & 21 monks.

Houses & Buyldinge

Appointed to Remayn undefaced.

The late Abbotte lodging | w[t] the New lodging adioyning. | the Kitchyn Larder Buttre and | Payntre w[t] the lodginge over | the same. The late Abbotte Stable | the Wolle house The Barne at | Spittell gate. The Gatehouse | which encloseth the Inner | Courte and the Gatehouse which encloseth the Utter | Courte.

The Custodie and fferm[r] | thereof graunted to Sir | Edward Baynton, Knight.

Demed to be superfluous.

The Church Cloister and Chapelles | adioyning The Dormytory Chaptre | house ffraytre Barbary Infir | mary w[t] all th lodginge to | the aioyning The Cellerers | Chambre The Squiers Chambre | Seint Mary hous the Chaundry | the Convent Kitchyn. All the | houses in the Sextrey ende The | Stywarde lodging the Storehous | the Slatt[r] hous the Gestyn Stable | and all oder houses in the | utter Courte.

Commytted unto the | Custodie of Willm̃ Stumpe deputie | to Sir E. Bainton K. their salfety | to be kepte to thuse of the | Kinge Majestie.

Leades Remayning

viz. vpon

The Church Quere Iles Steples | ffrayter chaptrehous o[r] Lady | Chapell. The late Abbotte | Lodging and oder houses | there estemed to

cxx ffoders.

Belles Remayning

In the Steples ther ~~viij~~ [ix] poiz by | estimaton

xv[ml] weight.

Juelles reserved

To thuse of the Kinge Magestie | Myters garnished w[t] Silver | gilte small Peerles and Counter | sette Stoones j.

Plate of Silver reserved

To thuse of the Kinge Magestie viz

Silver gilte	clxxiiij oz	Dlxxiiij oz
Silver pcell gilte	ccv oz	
Silver white	cliij[xx]xv oz	

Ornamente reserved

To the same use viz.

None

Other ornaments sold for £208 13*s.* 4*d.* altered to £211 13*s.* 4*d.*

APPENDIX III

PATENT ROLL, 36 HENRY VIII, PART 25 M $\frac{10}{41}$.

[In consideration of sum of £1516 15 $2\frac{1}{2}$ paid by William Stumpe 'generosus' Property in Rodborne late Malmesbury abbey's Brinkworth &c.]

$\frac{8}{43}$) 'Damus eciam pro consideracione | predicta ac ex certa sciencia et | mero motu nostris per presentes | concedimus prefato Willelmo Stumpe | totum illum scitum septum | circuitum ambitum et precinctum | dicti nuper Monasterii de Malmesbery | cum suis iuribus et pertinenciis universis ac omnia et singula | mesuagia molendina domus edificia | structura ortos pomaria gardina | stabula columbaria stagna vinar' | aquas piscaria et piscaciones terram | et solum nostrum infra eundem | scitum septum circuitum ambitum | seu precinctum ejusdem nuper | Monasterii existeñ. Ac eciam omnia | illa ortos pomaria et gardina cum | pertinenciis infra eundem scitum | ejusdem nuper Monasterii existeñ vocat le ffermery Orchard et le | Chamberers Orchard quo-quomodo | spectañ sive pertineñ. . . . .

Exceptis tamen ac nobis heredibus | et successoribus nostris omnino | reservatis omnibus et singulis | campanis et cooperturis plumbiis | ac toto plumbo de in vel super | quibuscumque edificiis infra dictum | scitum dicti nuper Monasterii de | Malmesbury aut de in vel super | aliqua inde parcella existeñ preter gutteras plumbias et plumbum in fenestris

&c &c

Stump's application for grant is dated 24 Feb. 1543–4, 35 H. VIII, and signed by himself.

APPENDIX IV

Augmentation Office Particulars of Grants, 35 Henry VIII (1543–4).

Stumpe William
Com. Wiltes. The late Monastery of Malmesbury.

Suñe of the value of all the housez & buyldinge w^t^in the pcyncte of the seyde late Monasterye.

Assigned to Remayne — that is to say

The late abbotte lodginge and the new lodging adyoynynge with kytchin larder Buttery Pantery and houses of Offyce w^t^ lodgyngis theruppon buyldyd pteynynge to the same Thabbotte Stable w^t^ the wolle house the Gate and houses over the same enclosinge the quadrante of the seyde Buyldynge the Barne at the Spytells Gate and the utt^r^ gate houses of the basse Court pryced at

Appoynted to be Rased and Solde — that is to say

The Churche w^t^ the Cloyest^r^ and Chapell adyoynynge]^li^
The Dormytory wythe the Chapterhouse c^s^
The ffrayter and lyberary c^s^
The ffarmery with all the lodgyng adyoynynge xiij^li^ vj^s^ viij^d^
The Sextery ende xl^s^
The Cellerers Chamber w^t^ the Squyers Chamber the Seynt Mary house with the chaundery and Convent Kytchyn w^t^ all the houses there the Store house in the Court the Sclatt house the Gesten Stable w^t^ houses adyoynynge and the Stewardes lodginge xl^li^

xl^li^ cxl^li^ vj^s^ viij^d^

clv^li^ vj^s^ viij^d^ ex^r^ p Willm̃. Berners auditorem.

Me^d^ that in all the pmysses th leades and belles bene no pcell of the value.

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SCALE

Feet 10 0 50 100 150 Feet

INGLEBURNE

MILL

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LAVATORY

CLOISTER

CHAPTER HOUSE

? SITE OF INFIRMARY

THE BELL HOTEL

ROOM ON FIRST FLOOR

CHAPEL

CHAPEL

TOWER

NAVE

RETRO-QUIRE

PULPITUM

QUIRE

PRESBYTERY

FERETORY OF St ALDHELM

LADY CHAPEL

A B C D

COFFIN

CHAPEL

PORCH

CHAPEL

CEMETERY

? SITE OF St MICHAELS CH.

DATES.

- 12th Century
- 13th Century
- 14th Century
- 15th Century
- Post Suppression

Hatching of each colour shews destroyed walls of that period.

Ground tint indicates buildings supposed to have been roofed at the suppression.

Harold Brakspear mens et delt 1899-1912.

C F KELL & SON, 47 & 48 TOTHILL STREET WESTMINSTER

Published by the Society of Antiquaries of London 1913

XI.—*Excavations at Caerwent, Monmouthshire, on the Site of the Romano-British City of Venta Silurum, in the years 1911 and 1912.* *By* ALFRED E. HUDD, *Esq., F.S.A.*

Read 29th May, 1913.

BEFORE beginning my report on recent excavations I must, with great regret, express on behalf of the Committee and of all connected with the Caerwent Exploration Fund the great and irreparable loss we have sustained by the decease of its President, Viscount Tredegar, F.S.A. From the beginning, in 1899, to the end, his Lordship had been one of the most enthusiastic and the most generous of our supporters. To him was largely due the success of the exploration, and without his aid it is doubtful whether it could have been undertaken. We have also lost by death since the date of the last Report another of our most valued supporters, Lord Llangattock, F.S.A., who was one of our Vice-presidents, and had taken much interest in the work, especially during its early years.

Since the autumn of 1910 no very extensive diggings have been undertaken by the Committee of the Fund, but sundry small excavations, especially in the churchyard, have enabled us to add considerably to the ground-plans of some houses and buildings previously only partially explored and described. We have also discovered two more interesting Houses, nos. XXV and XXVIs, one of which has been completely worked out, the other only partially, as its northern portion is under the chancel of the church. Our thanks are due to the Vicar of Caerwent, the Rev. W. Coleman Williams, M.A., for permission to make these excavations in such parts of the large churchyard as have not been used for burials for ages, and it is hoped that these diggings may be continued so long as funds hold out, and that more valuable remains may be discovered.

The most interesting and most unexpected find of the past year was made in September, outside the east city wall, and will be described later. It was at first supposed to have been an amphitheatre, but turned out to be the ruin of a large round temple, with very curious features not yet thoroughly explored.

No new work could be undertaken at Caerwent in 1912 until the extensive excavations of 1910–11, in the field north-west of the church, had been filled in. The southern portion of this field was so full of human remains that Viscount Tredegar decided to leave it unexplored; more than a hundred skeletons had

been exposed, and with the exception of a couple of iron spear-heads, found near two of them in the western part of the field, not a coin or relic of any kind had been discovered to throw light on their date. There can be little doubt, I think, that these were the remains of the Romano-British inhabitants of Caerwent, who had been slaughtered by some band of marauders from the Bristol Channel at some time during 'the dark period', between the middle of the fifth and the end of the ninth century.[1] These marauders did their work very effectually, not only by stripping their victims of everything worth taking away, but by raiding the town so thoroughly that not a single bit of gold and hardly any silver has been left for us to find. They also appear to have set fire to the place and to have nearly destroyed it, as is indicated by traces of burnt material, charcoal, etc., sometimes several inches thick, left in most of the buildings we have excavated. Some of the houses which were undergoing enlargement or rebuilding, probably at this period, were never completed, and it seems probable that the place was for a time quite deserted.[2] One of these late, unfinished walls is to be seen in the local Museum, which stands upon the site of a late Roman or Romano-British house. On another similar wall in the south diggings a number of unopened oyster-shells were found near the rough unfinished end of the wall, probably the uneaten dinner of the masons who were employed on the work and who were apparently driven off or slain by the marauders. Several skeletons, similar to those above mentioned, were found near the wall, some of which had been thrown into a well or pit in the neighbourhood. Other similar skeletons have been found recently in excavating the round temple outside the east wall.[3]

[1] Dr. Ashby does not agree with this theory. He writes: 'The burials were made long after the Roman houses had been razed to the ground or nearly so, and covered over with soil; for the graves were obviously dug from the top, and in digging them what little remained of the walls was destroyed and broken through in such a manner as to make it clear that the diggers did not know where the walls were—otherwise they certainly would have avoided them. This is what happens in the churchyard at the present day, and it *proves* that the burials in the field cannot be so very early.' To this I reply that there can be little doubt that many of the Roman houses had fallen into ruin long before the date suggested for the raids, and that in some cases there is evidence that the walls were standing to a height of four or five feet at the time of the slaughter, as for instance at the round temple, to be described later.

[2] Early in the sixth century the coasts of the Bristol Channel seem to have suffered very severely from piratical raids, and many of the inhabitants sought refuge with their relatives in Brittany. According to the Rev. S. Baring-Gould, 'About 514 A.D. Rhiwal arrived from S. Wales with a large fleet in the Bay of St. Brieuc and founded the principality of Domnonia. Another swarm came from Gwent' (Caerwent), 'where existence had become insupportable owing to the incursions of the Saxons. This Gwentian colony planted itself NW. of the peninsula, and called it Leon or Lyonesse, after Caerleon that had been abandoned' (Baring-Gould, *Book of Brittany*, p. 5). See also *Lives of the British Saints*, vol. i, Introduction, p. 41 et seq.

[3] It has been suggested that these are the remains of the victims of the plague which ravaged the country in the sixth century, but in that case they would hardly have been buried separately all over the site.

The considerable expense of filling in the excavations of 1910 and 1911 was generously undertaken by Lord Tredegar, who much regretted that his wish to keep some of the buildings open permanently could not be arranged. The little temple marked on the plan 'House XIX',[1] with the slab-covered courtyard or atrium to the north, between it and the main Roman street, would have been quite worth preserving, as also the well-built cellar or vault described in our last report, which was unlike anything found at Caerwent before or since. On the completion of the filling-in the field was restored to the owner in March, 1912, and there being no other land within the city walls then available, excavation ceased for a time and the workmen were dismissed. The land inside the walls not already explored is mostly covered with the houses and cottages of the village, with their gardens and orchards, but it is hoped that some day it may be possible to excavate part of this, especially the garden which covers the remains of the Public Baths, only a small part of which has yet been exposed.

Under these circumstances it was proposed by the Vicar, the Rev. W. Coleman Williams, that some little exploration might be made in the parish churchyard, which we knew to contain remains of several Roman buildings that had been partially excavated outside its southern and western boundaries. The churchyard is a large one, and no interments appear to have been made in some parts of it within living memory. On three sides a laurel hedge runs parallel with the walls at a distance of seven or eight feet, and a considerable portion to the south-east has long been used for the storage of loose stones (mostly Roman building material) which turn up nearly every time the ground is opened. The Vicar's proposal having been sanctioned by the Bishop of the diocese and other ecclesiastical authorities, and approved by Viscount Tredegar, work was begun to the south of the church, and has been continued ever since, with the results that will now be recorded. Enough space remains within the enclosure to occupy us for some months to come, until more extensive excavations can be undertaken.

House no. IX s.

The greater part of this house was excavated in 1902, and the remains are described in *Archaeologia*.[2] From the plan there given[3] it will be seen that the north-east portion of the house is under the ground inside the churchyard wall and could not therefore be excavated. Owing to the presence of graves in this

[1] *Archaeologia*, vol. lxii, pl. lx. There can be no doubt that this, as suggested by Prof. Haverfield, was a temple, which had been erected on the site of an earlier house. *Ibid.*, p. 439, *note*; *ibid.*, p. 424, pl. lxii.

[2] *Archaeologia*, lviii. 404–5.

[3] *Ibid.*, pl. xxvi.

part of the churchyard very little digging could be done here, and we were only able to trace a few feet of the north wall of the house, and of the street to the north of it, which is here in very good preservation, although a little farther to the south the courtyard of House no. IX s seems to have encroached on it. It may be noted, by the way, that nearly all the streets running south from the main road (the so-called Via Julia) seem to have been more or less blocked in later times by houses or courtyards built over them. Thus the first street from the west wall is partially blocked by the long narrow courtyard of House no. V s. The next street eastward, that above named, is almost entirely blocked by House no. IX s. The third street, passing south between Houses nos. XII and XIII s, is greatly narrowed by the western wall of House no. XIII s being built upon it, and the fourth street seems to have been completely blocked by the baths excavated by Mr. Octavius Morgan in 1856. Also, the large house excavated by the same explorer quite blocks the east end of the street running east and west. So far as we know, all the cross streets running *north* from the main street, except the one destroyed at a late date by the construction of the amphitheatre, were carried right through to within a few feet of the north wall. The street, however, which leads from the west side of the forum is very narrow in its northern portion, between Houses nos. II and III N, and does not now lead direct to the North Gate.

House no. X s.

Of this house, the southern part of which was excavated in 1904, nine rooms and a double courtyard have been previously described.[1] From the ground-plan[2] it will be seen that five of the walls are continued northward under the south wall of the churchyard. Our recent exploration, although it has almost doubled the size of the plan of the house, has added only one extra room. This plan is somewhat peculiar, there being corridors on the east and west, and two open areas, probably yards or gardens, to the south. Room 3 is continued northward from the churchyard wall to the main street, a distance of 36 ft. The north wall of Room 7 is just inside the churchyard, the new room, no. 10, being north of it. Room 3 is a large one, 43 ft. from north to south and 17½ ft. east to west.[3]

Some fifty coins were found in the northern rooms, ranging from Diocletian and Constantine the Great to Arcadius, and a considerable quantity of common pottery, Samian being represented by a few fragments only. On the street north of the house a small silver coin of Henry III was found.

[1] *Archaeologia*, lix. 290–1. [2] *Ibid.*, pl. lxvi.

[3] The dimensions of the southern rooms of House X have been given previously. Those of the northern rooms are as follows: (1) 43 ft. by 6 ft. 3 in.; (3) 43 ft. by 17 ft. 6 in.; (7) 43 ft. by 9 ft. 3 in.; (8) 9 ft. 6 in. wide at north end, 4 ft. at south end; (10) 30 ft. by 8 ft.

Room 3 had a concrete floor, of which we found traces 3 ft. 6 in. below the grass level; over this was a mosaic floor, of which a fragment remained near the east wall, with red and grey tesserae, about 3 ft. 9 in. below the grass. To the west of Room 1 a number of stone roofing-tiles was found. East of Room 8 a large covered drain[1] led from the street to the south-west; several of the covering stones remain *in situ*.

The Street.

The street running east and west to the north of House no. X s has now been traced from the west city wall more than half-way to the east city wall. To the south of this street, occupying the whole width of the Insula, was the fine House no. II s, the largest we have found at Caerwent, and north of it were Houses no. VII and XIV s. Further west, on the south side of the street, were Houses nos. IV, VI, and IX s, and between the latter and House no. X is another recently discovered house, no. XXV s, shortly to be described, and other buildings. The north side of the street seems to have been mostly bordered by yards and gardens belonging to houses fronting the main street to the north, the so-called Via Julia.

The large covered drain above mentioned doubtless carried off the rain-water from the surface of the street, near the north-east corner of House no. X; there was no small surface drain on the street, as there was on the street north of the basilica, but the street slopes down here to a lower level, and part of a gutter-stone was found which no doubt had served to carry the surface drainage into the large covered drain.

House no. XXV s.

This house is situated to the west of House no. X s, from which it is separated by a narrow space from 3 ft. 6 in. to 4 ft. wide. It is a building of considerable size, and is entirely within the south-west portion of the churchyard. The remains consist of buildings of three or four different dates, as will be seen from the ground-plans (figs. 1–3). The earliest building consists of a rectangular chamber measuring 25 ft. from east to west, and 18 ft. from north to south, probably with an entrance in the north wall to the street. Little more than the foundations of the walls remain, and some of these have been made use of by the later builders. Near the west wall of this chamber, and 4 ft. below the turf, were found a base metal, or plated, coin of Carausius, and a small brass

[1] *Archaeologia*, lix, pl. lxvi.

of Constans; also a small iron knife, and a fragment of bone sharpened at one end, apparently for use as a toothpick.

The building next in date was a house of considerable size, containing six rooms, one with a southern apse or bay-window, added later, and with a large walled garden or courtyard to the east. The northern portion of this courtyard (no. 2 on plan, fig. 4) could not be excavated on account of modern interments, and for the same reason it was not possible to find the doorways opening into



Fig. 1. House XXV s: first period.

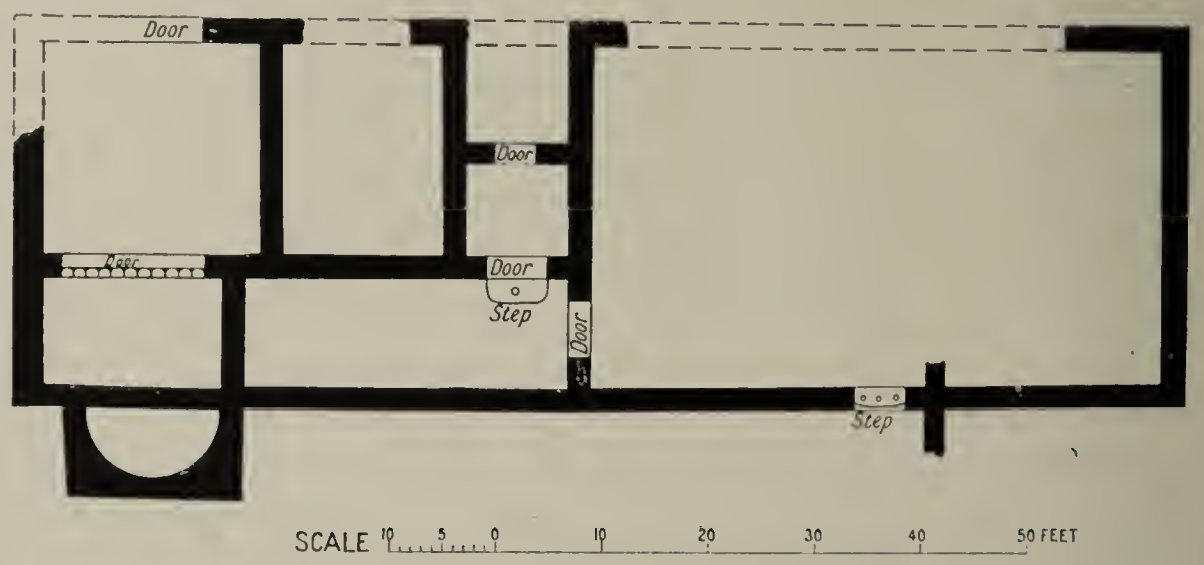


Fig. 2. House XXV s: second period.

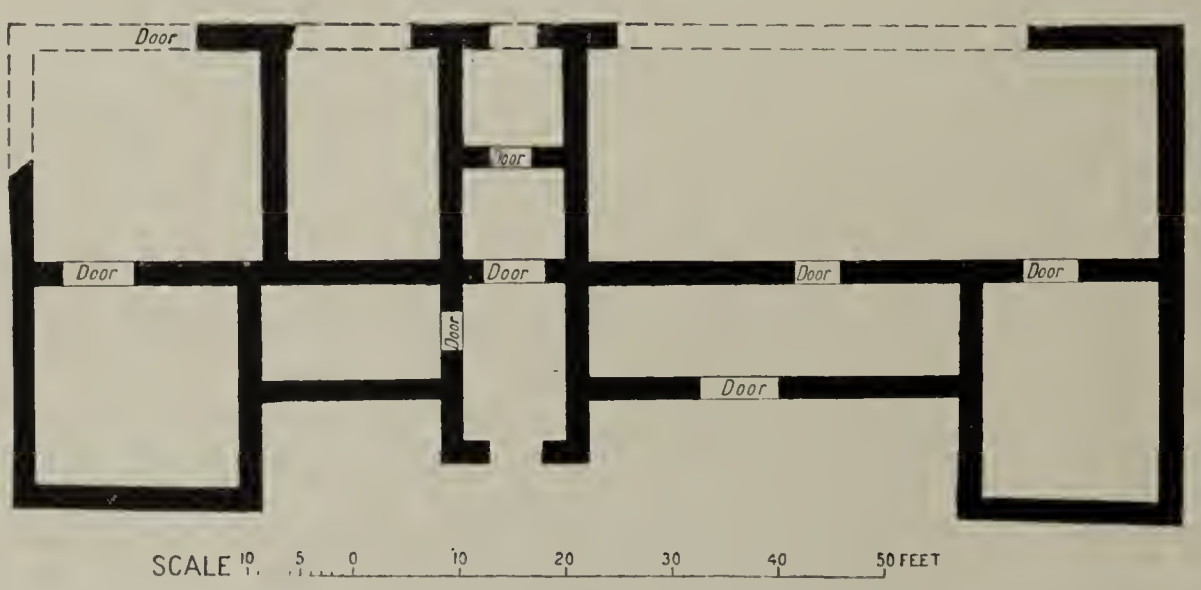


Fig. 3. House XXV s: third period.

the street through the north wall. There was a gateway in the south wall, of which the sandstone doorstep with three circular holes for the bolts remain.

The third and last state of the house is shown in fig. 3. Several of the rooms of the previous house were retained, but a projecting porch was added in the middle of the south front, and rooms were built at the east and west corners, that on the west being built over and destroying the apse or bay-window

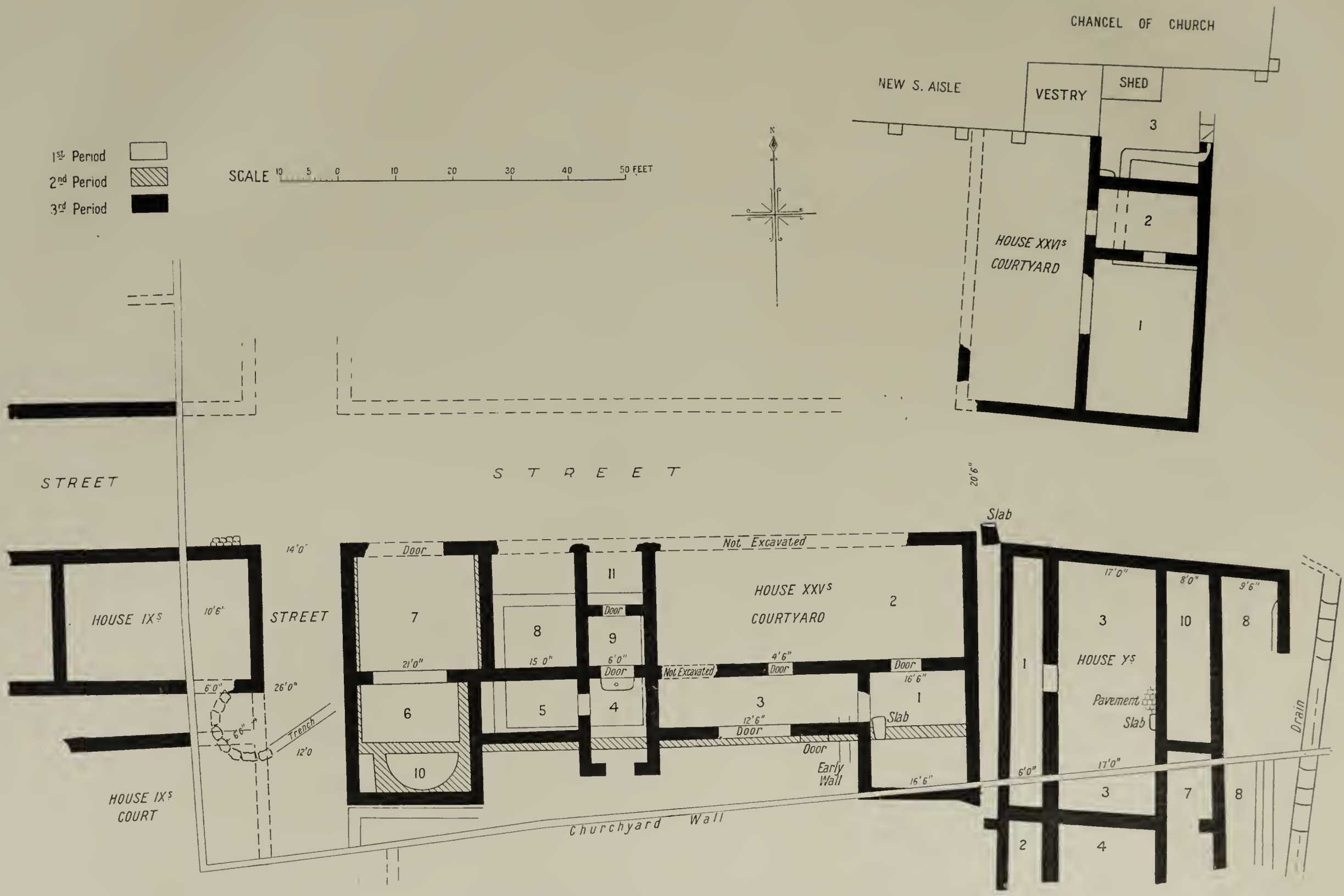


Fig. 4. General plan of excavations in churchyard in 1912.

of the previous house. Few relics have been found to throw light on the dates of these buildings, but the coins range from Septimius Severus to minims possibly of the end of the fifth century.

It will be convenient to describe the various rooms as they appear on the plan (fig. 4). Room 1, at the south-east angle of the block, is a large rectangular chamber with a doorway 6 ft. wide in its northern wall opening into the courtyard, no. 2. There was probably also a doorway into the long room or corridor, Room 3, but no trace of this was left. A curious leaden object, $6\frac{1}{2}$ in. long, of unknown use, was found in Room 1 and a couple of coins of Valentinian I. Also in this room was found a portion of a large sandstone column 1 ft. 6 in. in diameter, a coin of Valens, and a small sandstone finial measuring 7 ft. by 6 ft. by 5 ft. In the courtyard outside the north wall of the room some coins of Constantine and his sons were found, and some of the circular stone 'pot-covers' which are so numerous at Caerwent.

There were doorways in both the north and south walls of Room 3, the former 4 ft. 6 in. wide, leading into the courtyard; the latter into an open space to the south, between Houses IX and X s. The south wall of Rooms 3, 4, and 5 is built against and partially upon the south wall of the earlier house. There is no sign of a doorway leading from the corridor, no. 3, to Room 4, the ancient doorway here, belonging to the second date of the house, having been blocked up. No. 4 was evidently the south porch of the house and its principal entrance, leading through doorways into Rooms 5 and 9. Room 5 probably had doorways into 6 and 8, but no traces remain. Room 6–10 was built partially over the apsidal chamber of the earlier building, its south wall being continued beyond the corners of the apse and forming a rectangular block to match the similar projecting building at the south-east corner, Room 1.

With its projecting porch and two wings this building must have had an imposing façade, measuring 110 ft. from east to west. Room 7 was built entirely on the walls of the earlier house, and like it had a door in its north wall leading into the street. As previously stated, the north wall of the house could not be excavated, but it is probable that it had a wide gateway about the centre of the yard leading into the street.

The floor of most of the rooms of this later house had perished, or been destroyed, but in the north-east angle of the courtyard were remains of a floor of concrete or rammed gravel. North and south of the door leading from Room 1 to the courtyard were flat slabs of sandstone, one 2 ft. 6 in., the other 3 ft. long. There were traces of concrete floors in Rooms 7, 8, and 11, two feet below the turf level, on the same level as the street to the north, into which doubtless one or more doors gave access.

The remains of the earliest building on this site have been sufficiently

described above, but some further account of the second house may be given. Although the boundary wall of this second building was almost as extensive as that of the later one, the house itself consisted only of six rooms instead of nine, the whole of the space east of Rooms 4, 9, and 11 having been occupied by a large courtyard or garden. There appears to have been no direct entrance into this second house from the south, but a doorway 6 ft. wide opened into the courtyard, to the east, and another led from the courtyard into Rooms 4, 9, and 11. The doorstep, with a central socket and rounded corners, remained on the south side of the doorway from Room 4 to Room 9. During the second stage of the house the room at the south-west corner was considerably enlarged by the addition of a large bay or apse on the south side. This differs from other apsidal additions to Roman houses previously found at Caerwent in that the corners of the apse are solid, that is, the spaces between the circular and rectangular walls are filled in with stonework, as in the temple found near the forum.[1] The remainder of the rooms of the second house continued in use in the later building.

Two curious features remain to be described. Running north and south under the south walls of both the second and third buildings, 2 ft. west of Room 1, is a wide wall of which some 18 ft. were excavated. It continued both to the north and south, but could not be further explored. Probably it is older than any of the above-described buildings.

A still more peculiar feature was found 12 ft. to the west of the house, the base of a semi-circular wall, consisting of a single course only of large stones, possibly the remains of a round building, of which the internal diameter would have been about 12 ft. It is probably not of Roman date.[2]

In filling in the excavations of House No. XXVI, Room 7, a curious bronze object was found (fig. 5). The face may be intended for the Gorgon Medusa. It has been suggested by Mr. Reginald Smith that this may have been an escutcheon for the bronze handle of a large terra-cotta vase, as shown in the sketches (figs. 6 and 7). There were traces of tin (or silver) on the bronze.

House no. XXVIs.

Like House no. XXVs this is situated entirely within the churchyard. It is to the north of House no. Xs, its south wall adjoining the north

[1] When first uncovered this apse looked so like that of a temple that some unknown visitor to the excavations sent a note to the local papers, which was copied into various London and other newspapers under the heading 'Discovery of a Temple of Diana at Caerwent'.

[2] It is quite possible that at one period the whole of the buildings which we have called Houses X, XI, and XXVs may have been one large house of the 'Caerwent type'—with rooms on all four sides of a central courtyard, the rooms formerly on the south-west having perished.



Fig. 5. Bronze escutcheon for a bucket ($\frac{1}{1}$).

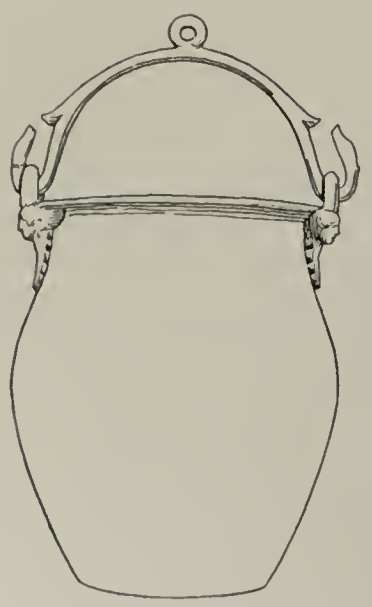


Fig. 6. Bucket showing escutcheon ($\frac{1}{6}$) (from Willers' *Neue Untersuchungen*, p. 57).



Fig. 7. Bucket showing escutcheon ($\frac{1}{5}$) (from Willers' *Römische Bronzeeimer von Hemmoor*, p. 28 and pl. iv).

side of the street, which is here from 20 ft. to 23 ft. wide. There are traces of buildings of two dates, but most of the walls excavated belonged to a range of rooms running north and south, with a courtyard or garden to the west, all apparently of the same period. Only three of these rooms and a part of the courtyard could be excavated, as the remainder of the house is under the vestry and chancel of the church. The house was bounded on the east by a paved area, which looks like a street running north and south, and of which only a small part has been uncovered. It is not in line with the street to the east of the forum, which can be traced southward through a modern lane to the street leading to the south gate of the city. This may have been only a private road leading to an eastern entrance to the house. Room 1 was a large, rectangular apartment, 26 ft. 6 in. by 18 ft., with a doorway 4 ft. wide leading into Room 2, and with a break in its western wall where no doubt was a doorway into the courtyard. The south wall of Room 1 and that of the courtyard are very well preserved, standing 1 ft. 9 in. above the level of the street and only a few inches under the turf. Some small late coins, a block of tufa, oyster shells, Samian and other pottery were found from one to three feet deep, but there was no trace of the floor. Room 2 is not rectangular, the east wall being a foot longer than the west; a door in the east wall led into the courtyard. Room 3 could only be partially excavated as much of it is under the church, but there are considerable traces here of an earlier building. An old wall remains under the south wall of Room 2, a return wall running north and south under the north wall of this room into Room 3, and there turning east under the east wall of Room 3. Our excavation of this last-named wall ended a few feet south of the chancel wall, terminating in some large squared blocks of oolite, probably from the Mendip hills, similar to those built up in the tower and south aisle. These seemed to be *in situ*, and probably formed part of some important building on the site of the parish church, traditionally said to have been a 'Temple of Diana'. The blocks of freestone previously found in this vicinity have since been used in the rebuilding of the south aisle of the nave, but the block carved with birds hiding under foliage, no doubt part of a cornice, and some other ornamented pieces, have been built for preservation into the wall inside the church.[1]

Round Temple (fig. 8).

The most interesting recent discovery at Caerwent was made quite accidentally early in September, 1912. The field outside the city wall on the north-east,

[1] Close to the south-west corner of Room 3 remains of a rough grave were found, in which were a few bones, a pewter sepulchral chalice, and a square iron buckle, which apparently belonged to a priest of about the beginning of the thirteenth century.

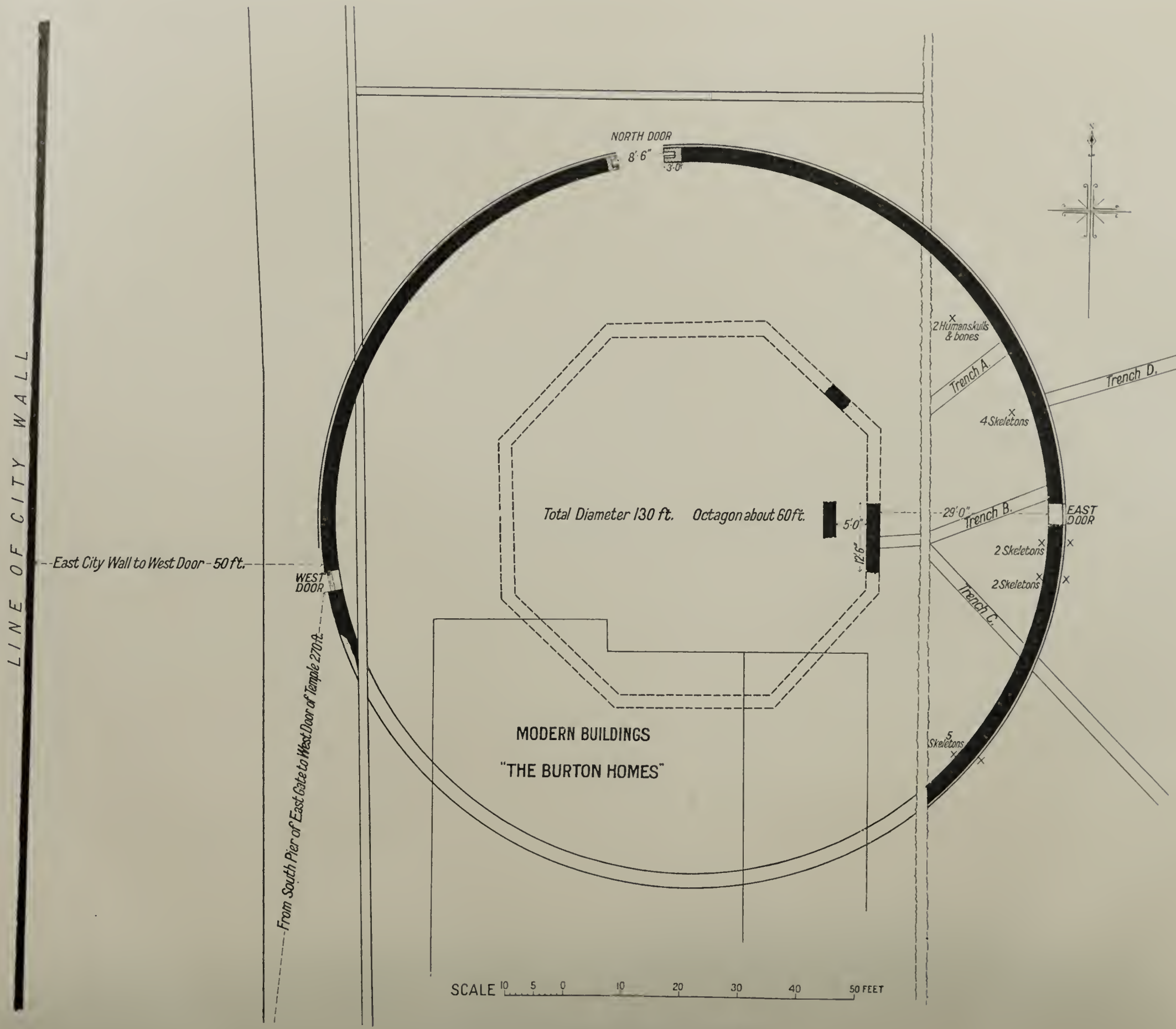


Fig. 8. Plan of the Round Temple, Caerwent.

between the east gate and the north-east corner of the wall, showed no signs of Roman remains underneath the turf. Recently the ground has changed hands, the larger part having been purchased by the County Council, and the corner near the gate by the Trustees of the late Col. Burton, for the erection of almshouses. On the last-named ground a handsome block of almshouses has been erected, and it was a little to the north of these buildings that some workmen, digging for stone to build a garden wall, hit on the remains of a solid Roman wall, the top of which was only two feet beneath the grass. They then proceeded to make use of this wall as a stone quarry, and it was only after some 50 ft. of the wall had been dug out and made use of that the Vicar of Caerwent heard of the discovery and wrote to inform me of it. Accordingly on the next morning I went down to Caerwent and found that some 50 ft. of a circular wall had been exposed and carried away, leaving a section of the wall 5 ft. deep and 2 ft. wide visible at either end of the trench. On examination I found that the remains, which were certainly Roman, extended under the ground east and west of the portion that had been excavated, and were unfortunately on three different properties. Viscount Tredegar having been communicated with and having generously undertaken to pay for the exploration, application was made to the owners for permission to dig.

The Burton Trustees were unable to grant permission, but fortunately we were more successful with the other owners. The County Council and the Highway Board both courteously gave their consent to the necessary excavations being made in their properties, and work was at once begun in the field east of 'the Homes', the circular wall being found and excavated to a length of about 110 ft. It was a well-built wall, averaging about 5 ft. high and 2 ft. thick, with a set-off on the outside. At first we were under the impression that the building we were excavating was a second amphitheatre and that the wall was probably that of the arena, its presumed circumference of about 390 ft. outside being however much less than that of most Romano-British amphitheatres. We therefore cut a couple of trenches radiating from the centre towards the east and south-east but could find no trace of outer walls. Continuing the excavation of the circular wall southwards, at 23 ft. from the hedge we found an opening in the wall and at a depth of 4 ft. a sandstone doorstep, with two socket holes for the bolts.

From this east door to the south the wall continued for 53 ft. to the hedge, which it passed under into the forbidden land of 'the Homes'. A couple of trenches from the wall towards the centre, as far as our boundary allowed, exposed the sloping clay floor, of which two sections were taken (figs. 9 and 10), but there was no trace of an inner wall. We then burrowed under the hedge so far as we dared, but still without finding anything. Being convinced that a few

more feet, perhaps even a few more inches, might expose some inner building, I came to a rather rash conclusion. Having written to the Charity Commission in London, who informed me that they had no objection to the excavation being made on the property of 'the Burton Homes', and one of the two Trustees having already expressed his readiness to consent if his colleague would do so, I decided to run the risk and to 'take French leave' to dig a trench

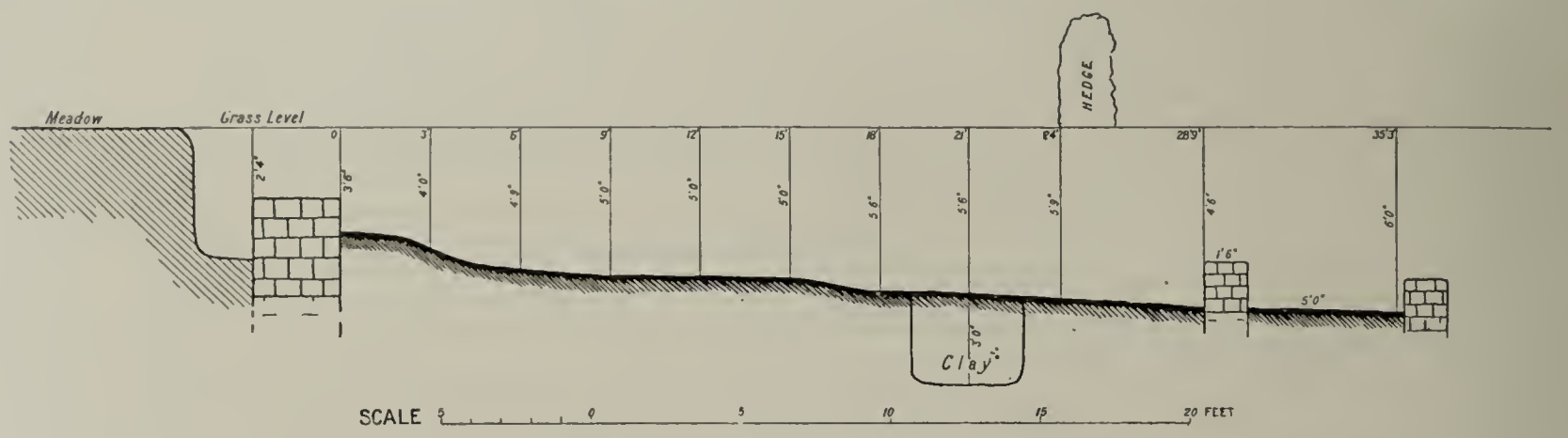


Fig. 9. Section of Round Temple, Trench B.

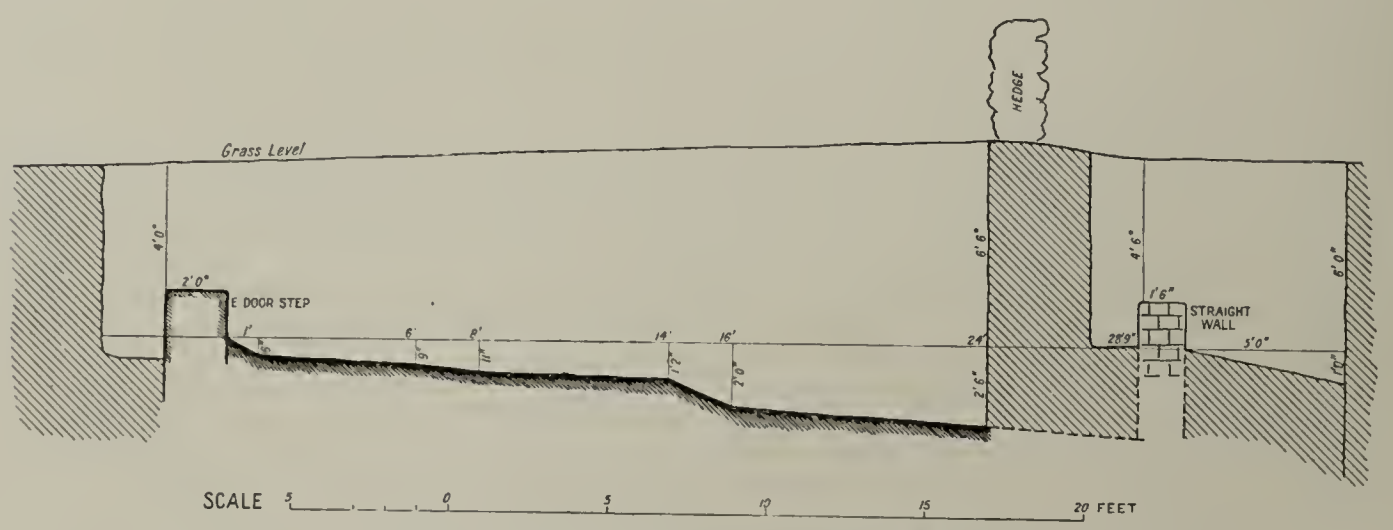


Fig. 10. Section of Round Temple, Trench C.

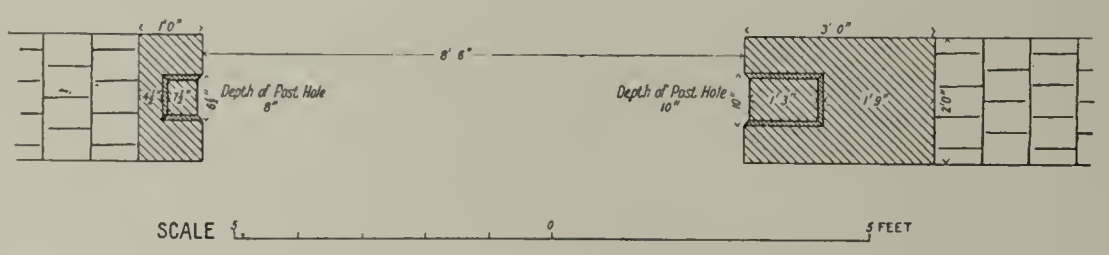


Fig. 11. Round Temple, plan of north door.

on the other side of the hedge, notwithstanding that one of the Trustees had refused his consent. After a few hours' excavation we were rewarded by the discovery of the remains of a portion of the inner wall. This, however, was not circular, but appeared to be quite straight, possibly a side of an octagon. While some of the men were at work on this wall others were continuing the circular trench which had been left open by the Trustees' men. Fortunately two hours'



Fig. 1. The outer wall, looking south: showing human remains



Fig. 2. The outer wall and east gate, looking north

CAERWENT: THE ROUND TEMPLE

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work here exposed the north door (fig. 11), 8 ft. wide, with its doorstep containing square or oblong holes on either side for the gate-posts. At this point came a sudden end to all our hopes of further discoveries in the form of a telegram from the Cardiff lawyers, followed by a letter in which they ordered the trenches already opened to be immediately closed and the damage repaired. Under these circumstances I went down to Caerwent, carefully noted all that had been found, ordered the trenches to be at once filled in, and wrote a letter to the Trustees apologizing for my trespass.

Shortly after this the workmen employed by the Trustees cut a trench for drainage purposes a few feet west of the small piece of wall we had discovered. This was a most fortunate circumstance, as they cut through two more fragments of walling which we were able to add to our ground-plan, and which support the idea that the inner wall of the temple was octagonal. What was inside the octagon we do not know; possibly another octagon, as has been suggested. Several Roman buildings with octagonal chambers inside a circular outer wall have been found in Britain, but I believe this to be by far the largest building of the kind yet known, if we may assume that this is a case.[1]

The excavation in the lane to the west, undertaken by kind permission of the Highway Board, led to the discovery of the west door, 32 ft. south of the point where the circular wall passes under the modern wall of the lane, the door being 4 ft. wide, $5\frac{1}{2}$ ft. below the surface of the road. The sandstone doorstep, 4 ft. wide, had a socket hole on the north side. This door is 270 ft. north-north-east of the south pier of the east gate of the city, and 50 ft. outside of the east city wall. The south door of the temple no doubt remains, but it is under the new buildings and cannot be excavated.

It has been suggested from the fact of the doorways being at the cardinal points that this may have been a solar temple. Nothing came to hand to throw any light on the subject, the only find being a number of round stones (the so-called potato-stones) found just inside the north gate. It is possible that these were sling-stones for the use of the unfortunate natives who had sought refuge in the temple during an attack of marauders, and whose bones still remain where they fell, several skeletons having apparently been thrown in carelessly one on the other, inside of and upon the ruins of the circular wall. This fact is interesting, as it shows us that the temple was in ruin when these interments took place.

[1] The diameter inside the circular wall at Caerwent is 130 ft.; the diameter of the supposed octagon about 60 ft. This is about the same as the outer octagon of the building at Weycock, Berkshire, described by Mr. Neville in the *Archaeological Journal*, vol. vi, which 'consists of an octagonal wall 63 ft. 7 in. exterior diameter, enclosing a smaller octagon 35 ft. 11 in.' Possibly the Caerwent building also had a second octagon, but at Weycock there was no sign of an enclosing circular wall, and there were no traces of the entrances.

Some of these human remains have been sent to Professor Macalister, of Cambridge, as mentioned in our last Report, where also his opinion that they are of post-Roman and pre-Saxon date is mentioned. He writes further, 'I am satisfied from their character that they are of the type commonest among post-Roman crania and are identical with others that I have obtained whose pre-Saxon age was confirmed by the fragments of pottery and other utensils found with them. I believe that they are most probably of late fifth or early sixth century age.' This would fit in with the raids of the Saxon or other marauders of the early sixth century,[1] with the early Welsh traditions of extensive migrations from Gwent to Armorica at that period, and the late unfinished buildings and numerous very late and much worn coins may be considered as evidence, even if it cannot be regarded as proof, that Caerwent continued to be inhabited by a considerable population for something like a century after the time of Honorius.

The building is on very low ground, and during our excavations was at times flooded to a depth of 4 ft. or 5 ft. At the north-east corner of the city, 300 ft. from the temple, there is generally a pond in wet weather (on the site of the moat), and it is difficult to say how the temple could have been kept free from floods, there being no sign of or room for a moat or ditch between it and the east wall of the city.

[1] In the new edition of his pamphlet on *The Romanization of Roman Britain*, pp. 63 and 64, Prof. Haverfield, in describing these raids, says: 'As the Romano-Britons retired from the south and east, as Silchester was evacuated in despair and Bath and Wroxeter were stormed and left desolate, the very centres of Romanized life were extinguished . . . sites lay empty and untenanted for many years. Only in the far west, at Exeter or at Caerwent, does our evidence allow us to guess at a continuing Romano-British life.'



WALL PAINTING TILL RECENTLY AT HARDHAM PRIORY, SUSSEX

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XII.—*On a Wall-painting till recently at Hardham Priory, Sussex.*

By C. J. Praetorius, *Esq., F.S.A.*

Hardham Priory, Pulborough, Sussex, the property of Lord Charles Beresford, was destroyed by fire on May 16, 1912. A wooden beam in the brickwork of a modern chimney was the cause of the outbreak, by which the farmhouse was entirely destroyed.

In an upper room, occupying the southern side of the refectory, a coating of papered plaster was destroyed, disclosing the early wall-paintings which are the subject of this note. The paintings are now entirely destroyed by the action of the weather.

Two subjects, superimposed, were painted on the wall, the earlier painting dating from the first quarter of the thirteenth century, the second about fifty years later.

The first scheme of decoration, as far as the evidence of its arrangement was preserved, consisted of a plain masonry pattern with double vertical lines representing the heading joints, and single lines for the bedding joints. On this background was set a panel 5 ft. 6 in. high by 3 ft. 4 in. wide, containing a figure of our Lady and Child under a canopy. She was seated on a rectangular cushioned throne with a cornice of conventional foliage, a spreading base, and a shaft with simple geometrical piercings, and wore a white dress with close-fitting sleeves and ample flowing body, held in at the waist with a girdle. Over it was a mantle, originally scarlet, but much faded, worn over the left shoulder and caught up on the left arm; on this arm was seated the Child in a wide-sleeved brown dress, and having a plain nimbus, His right hand raised in blessing, and His left holding a book. Our Lady had in her right hand a trefoiled sceptre with a red stem, and wore a jewelled crown, below which her hair fell to her shoulders. The background was a faded black, powdered with crescents, stars, and groups of dots in threes; and the canopy was trefoiled, with twisted shafts and foliate capitals, and had conventional buildings in the spandrils over the arch.

The second painting had a background of pink rosettes, on which was a representation of the Annunciation, on a larger scale and in a freer style than the earlier panel. Parts only of the angel remained, the lower parts of the

figure being lost. He held in both hands a candle in a candlestick, and stood or knelt under a trefoiled arch with conventional buildings in the spandrils. The figure of our Lady was completely destroyed, but above the place it once occupied was an angel, probably holding a censer, and issuing from the clouds. The finial and part of the gable of the canopy over our Lady were also preserved.

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